Bendix® ACom® Diagnostics Software 6.7

User Guide

ELECTRONIC CONTROLS
ACom® Diagnostics
Diagnostic Software for ABS
Bendix
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General Information

Bendix® ACom® diagnostics will provide the technician with the capability to configure and troubleshoot Bendix components.

This application will support the following Bendix® products:

- Bendix® EC-60™ electronic controller
- Bendix® EC-80™ electronic controller
- Bendix® Wingman® active cruise with braking
- Bendix™ VORAD® VS400 radar system
- Bendix® FLC20 camera system
- Bendix™ SmarTire® Tire Pressure Monitoring System (TPMS)
- Bendix® Trailer-Link™ System
- Bendix® Tractor Lift Axle ABS module
- Bendix® TABS-6™ Trailer ABS module
- Bendix® TABS-6™ Advanced trailer ABS module
- Bendix® TABS-6™ Advanced MC™ trailer ABS module
- Bendix® TABS-6™ Advanced MV™ trailer ABS module
- Bendix® EC-30™electronic controller
- Bendix® EC-17™ electronic controller
- Bendix® EC-30T™ electronic controller
- Bendix® MC-30™ electronic controller
- Bendix® A-18™ electronic controller
- Bendix® Gen 4 (U1x) electronic controller
- Bendix® Gen 5 (U12 and U16) electronic controller

RP1210 Adapters

The Bendix® ACom® Diagnostic software relies on RP1210 compliant hardware adapters for communication. A list of the recommended adapters is shown below.

NOTE: ACom® Diagnostics will remain in the demo mode unless there is at least one RP1210 driver installed on the computer.

What follows is a list of supported hardware adapters for the software.

Before using this software, verify that the driver (.dll) for the adapter to be used for communications is already loaded on the computer and is the latest version available from the adapter manufacturer.

- NAVCom/NAVLink
- Volvo 88890020
- Nexiq USB-Link
- Nexiq Bluetooth USB-Link
- Nexiq PLC Adapter
- Noregon DLA+
- Noregon DLA+PLC
- Noregon UDIF PLC/J1708
- JPRO DLA+PLC
- Cummins Inline 5
- Cummins Inline 6
- Dearborn DPA4+
- Dearborn DPA5
- Dearborn PLC TestCon (may be available in a kit with DPA4+)

Note: Adapters that interface using serial or parallel ports to the laptop are no longer supported.

PC Hardware Requirements

Bendix® ACom® diagnostic software will run on Windows Vista, Windows 7 and Windows 8 operating systems. Below are the minimum requirements for running the application.

- 1 Gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor
- 2 GB RAM
- 1 GB free disk space
- Microsoft Internet Explorer 8+
- Adobe Acrobat (latest version recommended)
- USB Communication port
- VGA standard graphics adapter with a resolution of 800 x 600 (minimum), 1024 x 768 recommended
- Windows compatible keyboard and mouse

NOTE: Windows 95, 98 and XP operating systems are not supported.

The content displayed on an ACom Diagnostic screen depends on: the ECU selected on the Start page; and also on the features enabled on the ECU. Certain features/options of ACom Diagnostics may not be visible, since they do not apply to the ECU being inspected.

For extended details on the features of a particular ACom Diagnostics screen, select the *Help* button located on that screen.

Technical Assistance

For any questions regarding setup or operation of ACom® Diagnostics please contact Bendix at 1-800-AIR-BRAKE (1-800-247-2725). See the Bendix website, www.bendix.com for periodic software updates.

Licensing Information BENDIX® "ACom® Diagnostic software" requires an end user license agreement, including user consent, prior to installing the software on the user's computer.

Installing Bendix® ACom® Diagnostics

When installing Bendix® ACom® Diagnostics it is recommended that all other programs be closed. ACom Diagnostics will be installed using a setup wizard, during which the technician will need to acknowledge various questions for the installation to continue.

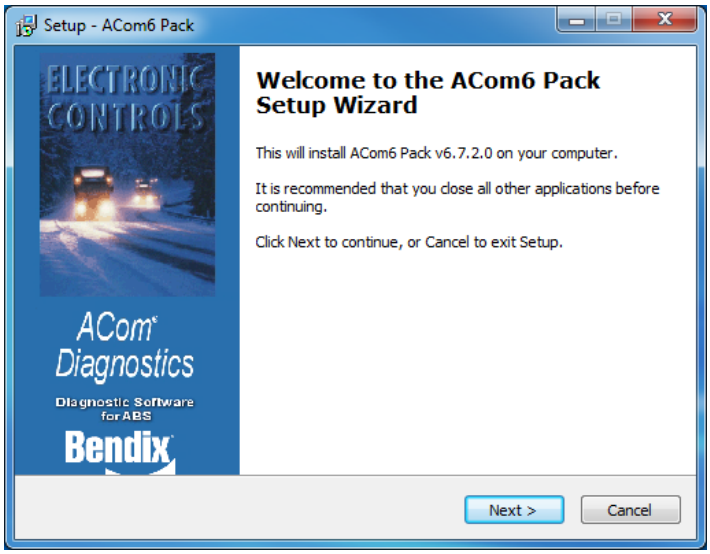

Setup - ACom6 Pack
ELECTRONIC CONTROLS
ACom® Diagnostics
Diagnostic Software for ABS
Bendix
Welcome to the ACom6 Pack Setup Wizard
This will install ACom6 Pack v6.7.2.0 on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Figure 1

The Bendix ACom Diagnostics software is installed to the default location of C:\Bendix\ACom Diagnostics. During installation of ACom Diagnostics 6.7, several applications will be installed and several installation windows will appear. If there are any older versions of ACom Diagnostics on the computer ACom® Diagnostics will un-install the older versions.

ACom Diagnostics 5.12 will also be installed with the ACom® Diagnostics 6.7.

After a period of time, a pop-up box will be displayed indicating that the installation was successful.

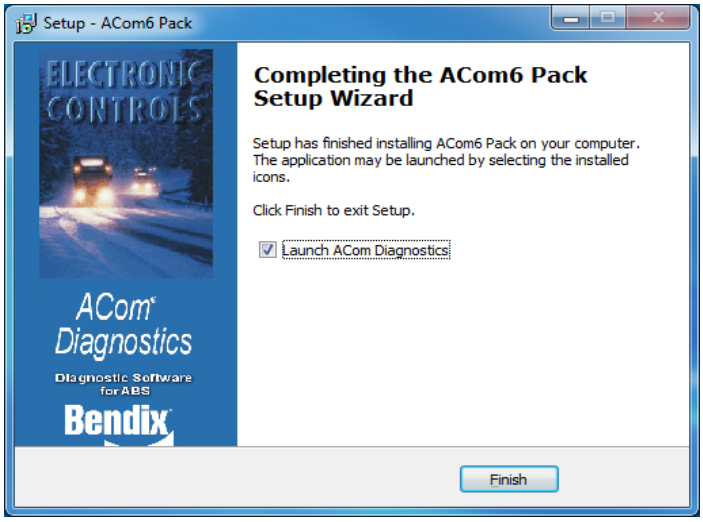

Setup - ACom6 Pack
ELECTRONIC CONTROLS
ACom® Diagnostics
Diagnostic Software for ABS
Bendix
Completing the ACom6 Pack Setup Wizard
Setup has finished installing ACom6 Pack on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Launch ACom Diagnostics
Finish

Figure 2

Next the Setup wizard will report that the setup is completing and allow the technician to launch the ACom® Diagnostics tool.

Using Bendix® ACom® Diagnostics

An icon will be placed on the desktop. Double click the icon or select the ACom Diagnostics application from the Bendix install directory or Program group to launch the program. A Starter screen will appear.

The starter screen has various features:

1. The desired Communication adapter can be selected by clicking the icon depicting a computer and tractor/trailer. (See the arrow shown in Figure 4.) Selecting this icon opens up the driver selection for the RP1210 adapter. Check the box next to the adapter you will use, then press the green checkbox to confirm.

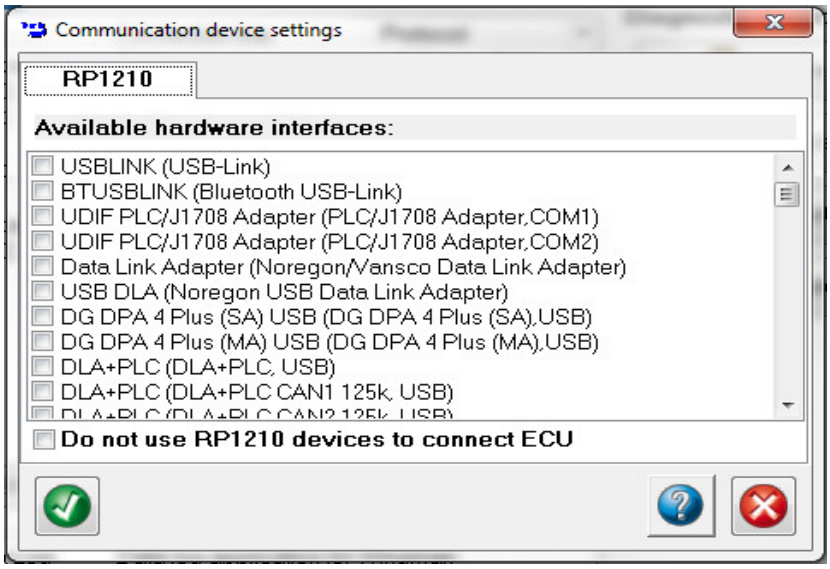

Communication device settings
RP1210
Available hardware interfaces:
USBLINK (USB-Link)
BTUSBLINK (Bluetooth USB-Link)
UDIF PLC/J1708 Adapter (PLC/J1708 Adapter,COM1)
UDIF PLC/J1708 Adapter (PLC/J1708 Adapter,COM2)
Data Link Adapter (Noregon/Vansco Data Link Adapter)
USB DLA (Noregon USB Data Link Adapter)
DG DPA 4 Plus (SA) USB (DG DPA 4 Plus (SA),USB)
DG DPA 4 Plus (MA) USB (DG DPA 4 Plus (MA),USB)
DLA+PLC (DLA+PLC, USB)
DLA+PLC (DLA+PLC CAN1 125k, USB)
Do not use RP1210 devices to connect ECU

Figure 3

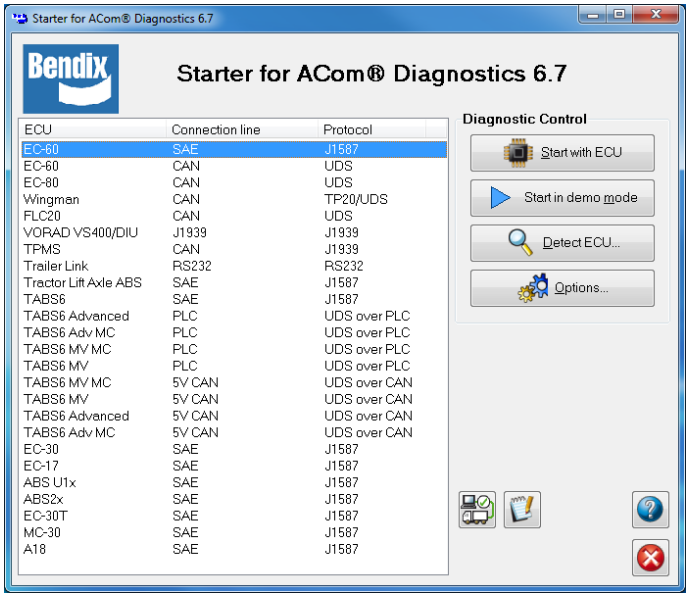

Starter for ACom® Diagnostics 6.7
Bendix
Starter for ACom® Diagnostics 6.7
ECU Connection line Protocol
EC-60 SAE J1587
EC-60 CAN UDS
EC-80 CAN UDS
Wingman CAN TP20/UDS
FLC20 CAN UDS
VORAD VS400/DIU J1939 J1939
TPMS CAN J1939
Trailer Link RS232 RS232
Tractor Lift Axle ABS SAE J1587
TABS6 SAE J1587
TABS6 Advanced PLC UDS over PLC
TABS6 Adv MC PLC UDS over PLC
TABS6 MV MC PLC UDS over PLC
TABS6 MV PLC UDS over PLC
TABS6 MV MC 5V CAN UDS over CAN
TABS6 MV 5V CAN UDS over CAN
TABS6 Advanced 5V CAN UDS over CAN
TABS6 Adv MC 5V CAN UDS over CAN
EC-30 SAE J1587
EC-17 SAE J1587
ABS U1x SAE J1587
ABS2x SAE J1587
EC-30T SAE J1587
MC-30 SAE J1587
A18 SAE J1587
Diagnostic Control
Start with ECU
Start in demo mode
Detect ECU...
Options...

Figure 4

2. The entry screen allows the technician to Start with ECU, if the technician knows which ECU they are diagnosing. *See Figure 4.* Select from the list on the Starter screen and press the *Start with ECU* button.
3. Alternatively, the program will detect the ECU. The screen will indicate which Bendix ECU was found and the technician can select *Launch* to start Bendix® ACom® Diagnostics.

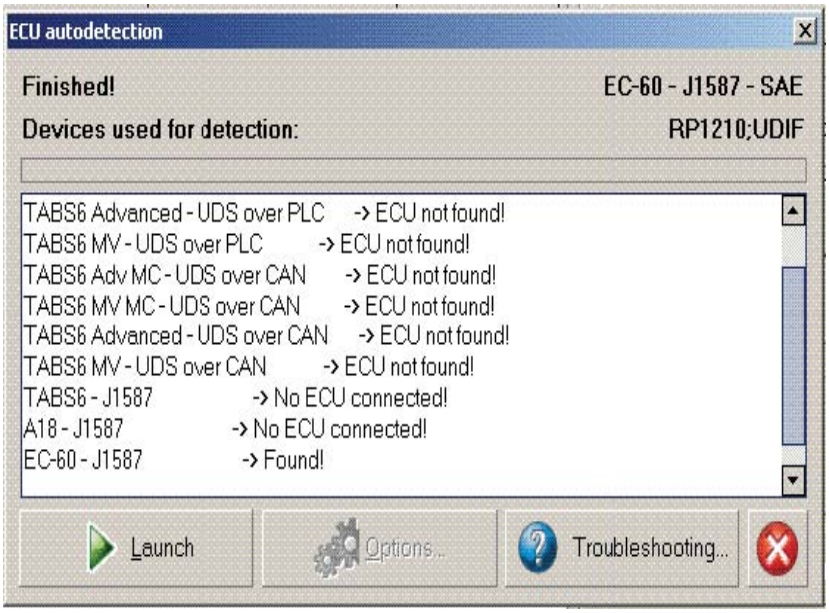

ECU autodetection
Finished!
EC-60 - J1587 - SAE
Devices used for detection:
RP1210;UDIF
TABS6 Advanced - UDS over PLC -> ECU not found!
TABS6 MV - UDS over PLC -> ECU not found!
TABS6 Adv MC - UDS over CAN -> ECU not found!
TABS6 MV MC - UDS over CAN -> ECU not found!
TABS6 Advanced - UDS over CAN -> ECU not found!
TABS6 MV - UDS over CAN -> ECU not found!
TABS6 - J1587 -> No ECU connected!
A18 - J1587 -> No ECU connected!
EC-60 - J1587 -> Found!
Launch
Options...
Troubleshooting...

Figure 5

4. Any ECU can be displayed in the DEMO mode by pressing the *Start in Demo mode* button. The Demo mode allows the technician to investigate the program's features without communicating with an actual ECU.

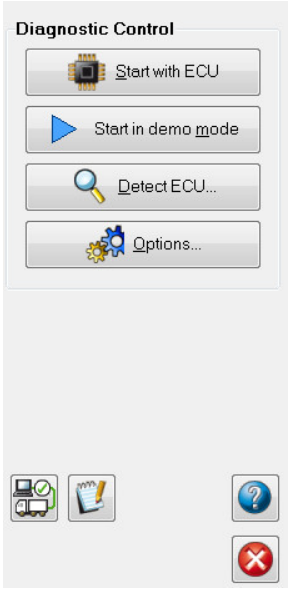


Figure 6

The following ECU controllers are supported by Bendix® ACom® 6.7 diagnostic software on the ACom 6.7 CD:

- Bendix® EC-60™ electronic controller
- Bendix® EC-80™ electronic controller
- Bendix® Wingman® active cruise with braking
- Bendix™ VORAD® VS400 radar system
- Bendix® FLC20 camera system
- Bendix™ SmarTire® Tire Pressure Monitoring System (TPMS)
- Bendix® Trailer-Link™ System
- Bendix® Tractor Lift Axle ABS module
- Bendix® TABS-6™ Advanced trailer ABS module
- Bendix® TABS-6™ Advanced MC™ trailer ABS module
- Bendix® TABS-6™ Advanced MV™ trailer ABS module

Additionally, Bendix® ACom® diagnostic software 5.12 is included on the ACom® 6.7 CD and will support the following:

- Bendix® TABS-6™ trailer ABS module
- Bendix® EC-30™ electronic controller
- Bendix® EC-17™ electronic controller
- Bendix® EC-30T™ electronic controller
- Bendix® MC-30™ electronic controller
- Bendix® A-18™ electronic controller
- Bendix® Gen 4 (U1x) electronic controller
- Bendix® Gen 5 (U12 and U16) electronic controller

If you have any questions about the operation of ACom® Diagnostics 5.12, open the ACom Diagnostics 5.12 User Guide PDF available on the Bendix web site (www.bendix.com).

Bendix® ACom® Diagnostic Windows 6.7 Screen ECU Status Screen

Refer to the Service Data sheet for the system being diagnosed for all cautions and warnings; certain system changes (e.g. sensor position changes) require approval from Bendix Engineering.

Bendix® ACom® Diagnostics opens, by default, to the Electronic Control Unit (ECU) status screen. This screen provides the technician with a snap-shot of the ECU. In the *System Data* field, the following information is displayed: system name, part number, serial number, software version, ABS configuration, odometer, whether Bendix® Trailer Roll Stability Program (TRSP) is enabled or disabled and ADL program. Additionally, in the *Status* field, the voltage and the number of active Diagnostic Trouble Codes (DTCs) − if any − are displayed.

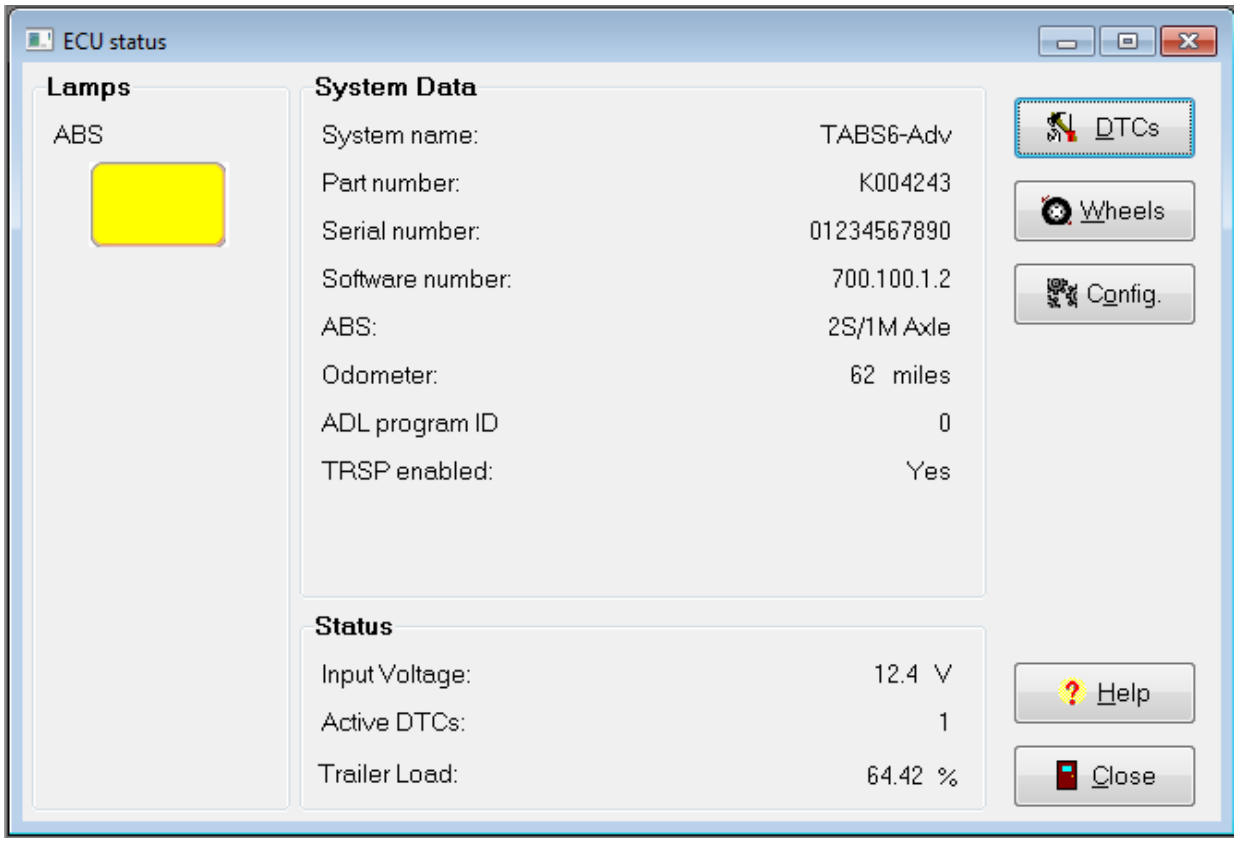


Figure 7

From the ECU Status screen the technician can open the DTC screen by either double clicking on the ABS lamp or selecting the DTC button. The technician can also open the Wheel Speed Sensor or Configuration screens by selecting the appropriate button.

Control Buttons for ECU Status

- The *DTC* will open the DTC screen
- The *Wheels* will open the wheel speed sensor screen
- The *Config* will open the configuration screen
- The *Help* will open the Help page for ECU Status
- The *Close* will close the screen

Diagnostic Trouble Code (DTC) Screen

The DTC screen provides the technician with active, inactive and event history information. For the active DTC information, the screen is divided into three panes. The first pane displays the active DTCs, the second pane displays troubleshooting/repair information corresponding to the active DTC; and the third pane displays the connector with pin-out so the technician can troubleshoot the active DTC. Additionally, a count of the number of occurrences of the DTC, and odometer readings of the first and last occurrence of the DTC and the current odometer reading are provided.

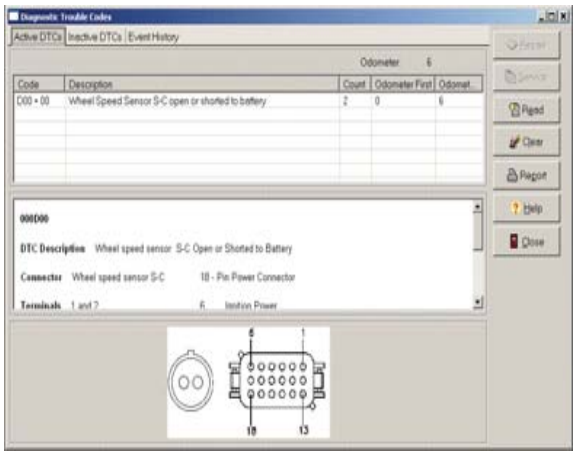


Figure 8

The event history screen displays information for: configuration change events; the history of cleared events; end of line test complete, and more.

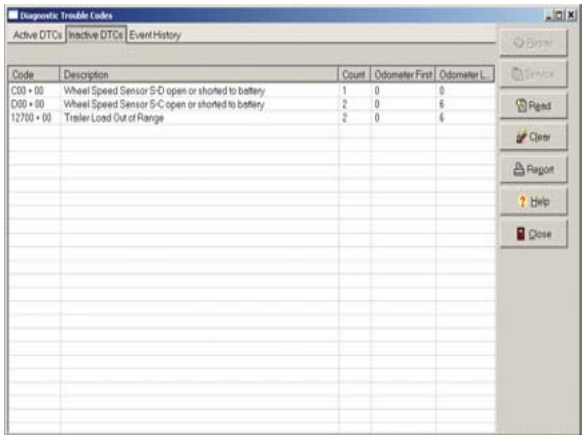


Figure 9

Control Buttons for DTC screen

- The *Service* button will open the Service Data sheet for the ECU.
- The *Repair* button will open the repair file for wheel speed sensors only.
- The *Read* button will read the information from the ECU.
- The *Clear* button will clear the information from tab and a pop-up box will confirm that the ECU has processed the request. Click the pop-up to acknowledge.
- The *Report* button opens a screen for the technician to generate a DTC report, additionally, the technician can select to save, email or print DTC reports.
- The *Help* button opens help page for the DTC screen.
- The *Close* button closes the DTC screen.

Wheel Speed Sensor Screen

The wheel speed sensor screen allows the technician to spin the wheels and record the sensor output. Additionally, there is a sensor air gap field which indicates the speed when the sensor starts registering speed. A lower air gap speed value (e.g. 3 to 4) indicates a properly adjusted wheel speed sensor. An air gap speed value higher than 5 indicates that the wheel speed sensor needs to be adjusted by installing the sensor closer to the tone ring eliminating the distance between the sensor and tone ring.

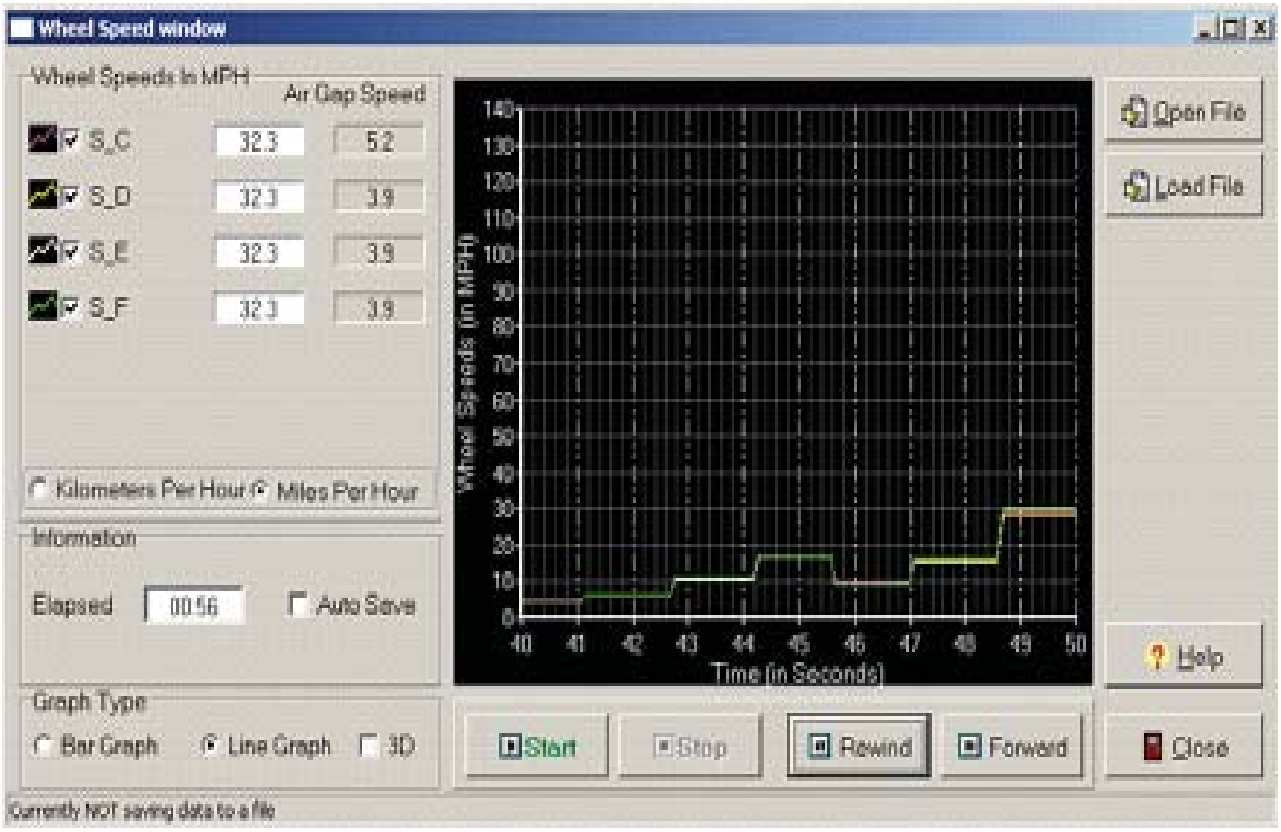


Figure 10

Control buttons for graph:

- The *Start* button will start the data collection.
- The *Stop* button will stop the data collection.
- The *Rewind* button will rewind the data.
- The *Forward* button will forward the data.
- The graph display can be a line graph (default), a bar graph, or 3D-style graph.

Control Buttons for Wheel Speed

- The *Open File* button will open an existing wheel speed file.
- The *Load File* button will load an existing wheel speed file.
- The *Help* button will open the Help page.
- The *Close* button will close the screen.

Configuration Screen

The Configuration screen provides the technician with the following information: ABS configuration, Load and Sensor, TRSP (if equipped), ADL, AUX I/O and Broadcast options.

ABS Configuration

ABS Configuration provides the technician with the number of sensors and modulators the ECU is currently configured to expect. *Vehicle Data* provides the technician with vehicle type, the number of axles, and the ECU orientation. *Odometer* displays the odometer, trip and service odometer. *Tire size [RPM] / Tone Ring* displays the stored tire size and tone ring size.

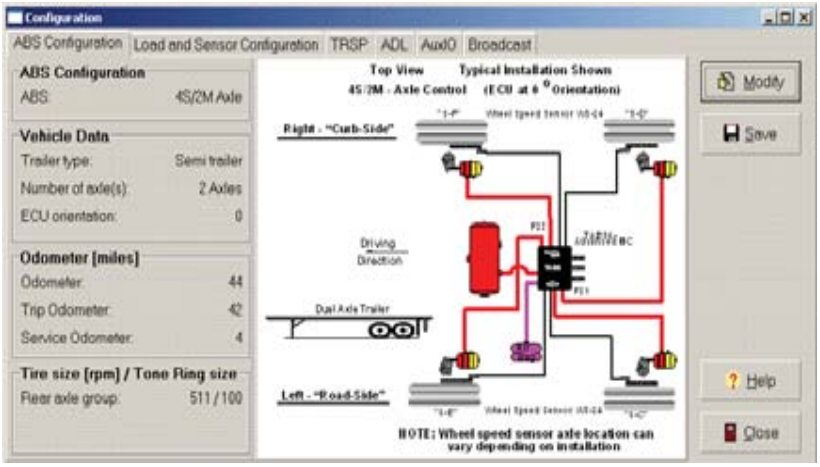


Figure 11

Load and Sensor Configuration

The *Sensors* field provides the technician with information on how the external load sensor (if equipped) is configured. The *Bogie Load* field shows the expected weight for the rear axle – empty and fully loaded. The *Miscellaneous* field shows the wheel track width and number of lift axles. The *Lateral Acceleration Sensing* field provides whether the sensing type is internal or external (if equipped). The *Load Sensing* field displays the sensing type (internal or external) and displays the detected air bag pressures.

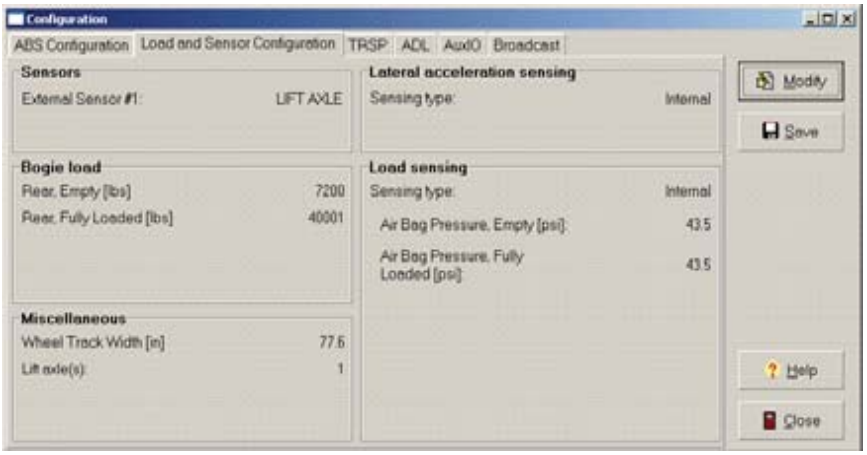


Figure 12

Bendix® Trailer Roll Stability Program (TRSP) Screen

Note: TRSP screen will be available if the Electronic Control Unit (ECU) supports TRSP. The TRSP window allows the technician to check if TRSP is enabled, the TRSP module position, and the TRSP parameters.

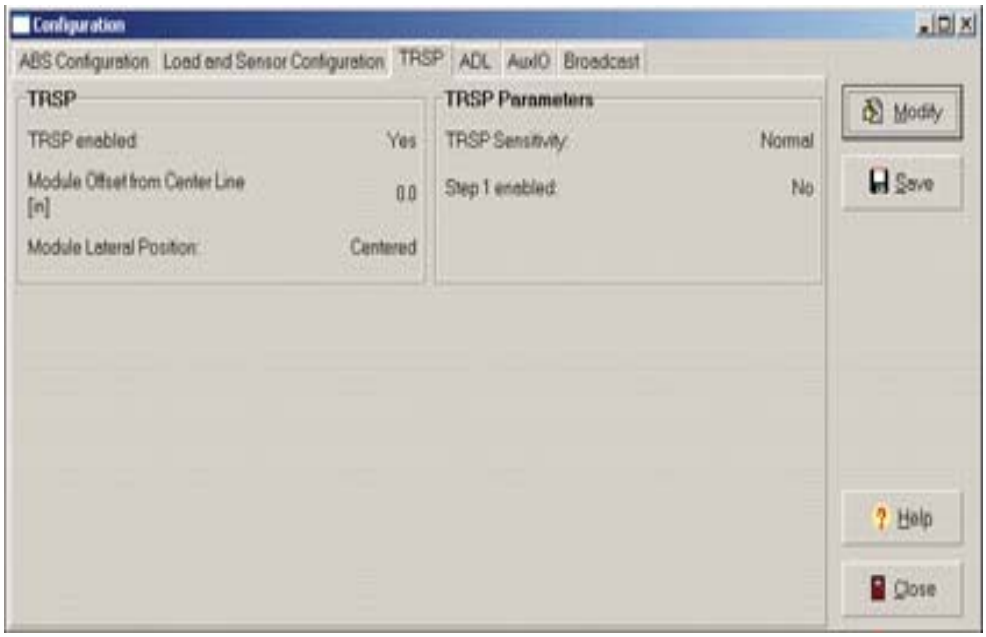


Figure 13

Auxiliary Design Language (ADL)

The ADL screen allows the technician to verify if the ECU has an auxiliary design language program stored for a specific operation. This screen is read only.

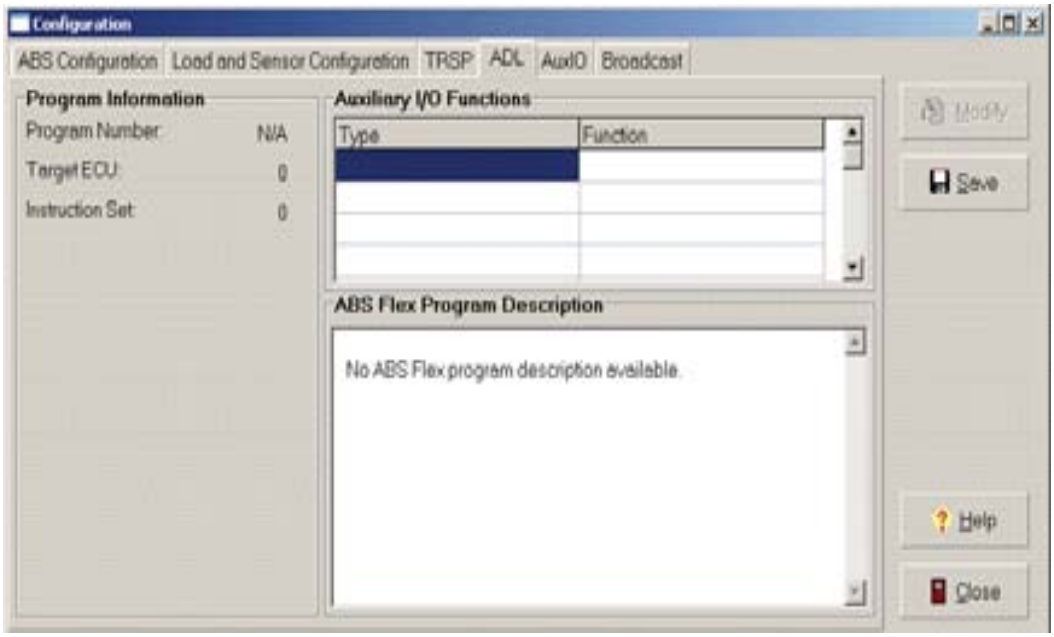


Figure 14

AUX I/O

The AUX I/O screen allows the technician to see how the ECU's auxiliary inputs and outputs are configured. This screen is read only.

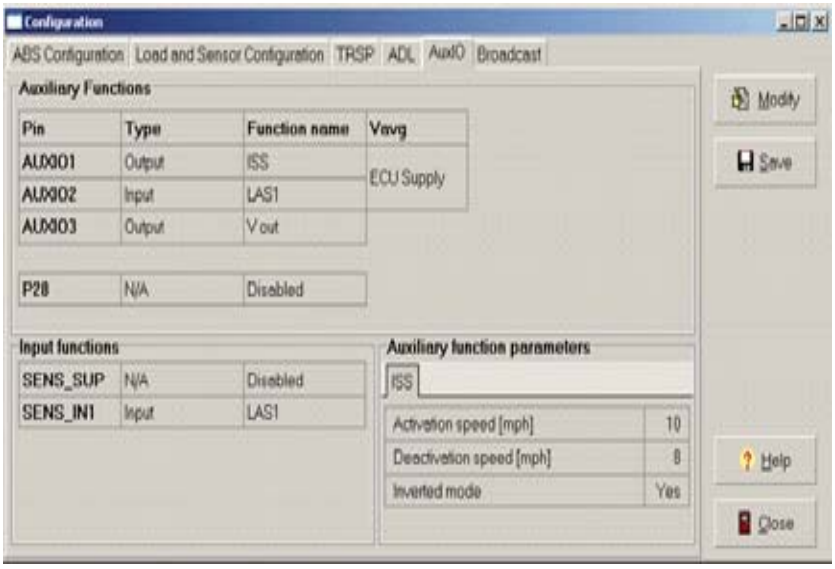


Figure 15

Broadcast

The Broadcast screen allows the technician to see which J2497 and J1939 messages are (or are not) enabled.

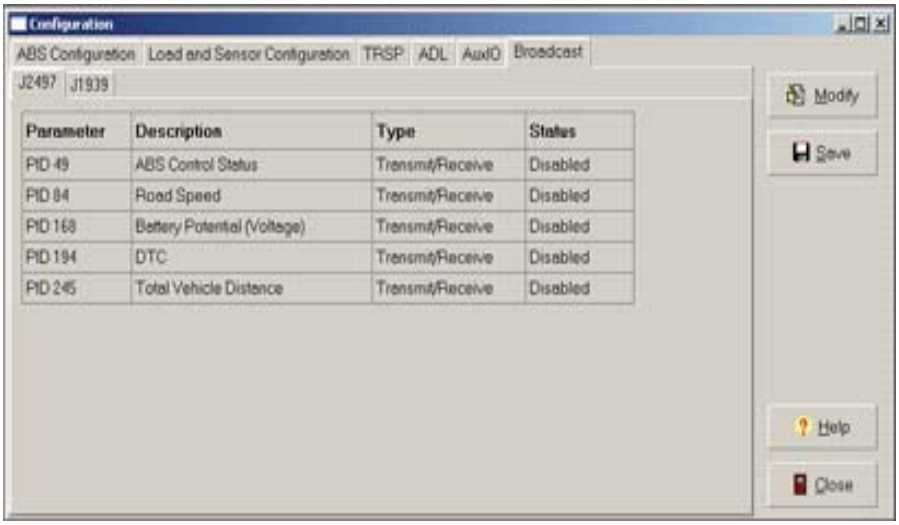


Figure 16

Control Buttons for Configuration Screens

- The *Modify* button will open the change screen
- The *Save* button will save the configuration file of the ECU
- The *Help* button will open the HELP page
- The *Close* button will close the screen

Pressures Screen

The Pressures screen allows the technician to view and record pressures supplied by the trailer ABS system. The table below describes which pressures are reported by supported Electronic Control Units (ECUs). The pressures screen allows the technician to apply the brakes and monitor the pressures.

		Trailer ECU features			
		TABS-6 Advanced (ADV)	TABS-6 Multi-Voltage (MV)	TABS-6 Advanced (ADV) Multi-Channel (MC)	TABS-6 Multi-voltage (MV) Multi-channel (MC)
Pressure Values Available to View	Supply - P1	No	No	Yes	Yes
	Control - P4	Yes	Yes	Yes	Yes
	Delivery - P21	Yes	Yes	Yes	Yes
	Delivery - P22	No	No	Yes	Yes
	Air Bag - P42	Yes	No	Yes	No

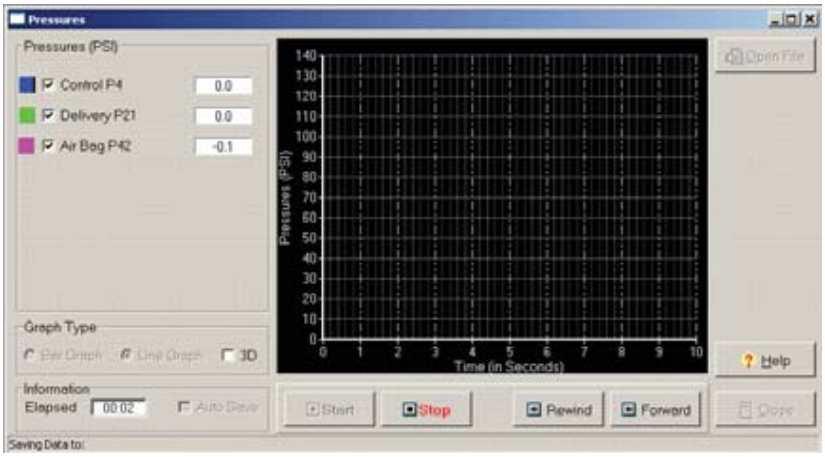


Figure 17

Control Buttons for Graph:

- The *Start* button will start the data collection
- The *Stop* button will stop the data collection
- The *Rewind* button will rewind the data
- The *Forward* button will forward the data
- The graph display can be a line graph (default), a bar graph, or 3D-style

Control Buttons for Pressure Screen:

- The *Open* file button will open an existing pressure file
- The *Load* file button will load an existing pressure file
- The *Help* button will open the Help page
- The *Close* button will close the screen

Bendix® Trailer Roll Stability Program® (TRSP) Sensors

NOTE: The TRSP sensors will only be available if the ECU supports TRSP. The TRSP sensors allow the technician to monitor the lateral acceleration sensor, axle load and installation angle data.

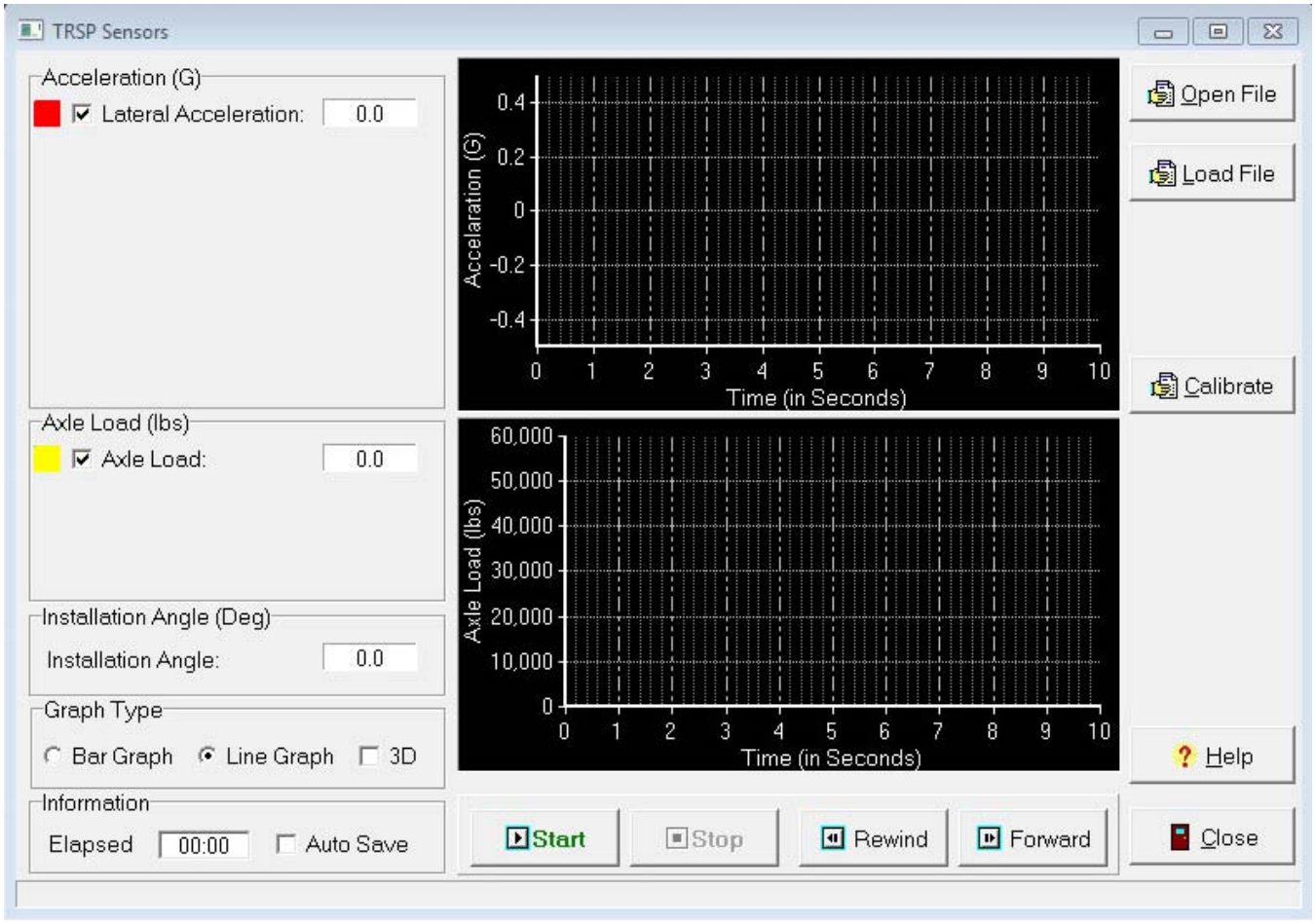


Figure 18

Control Buttons for Graph:

- The *Start* button will start the data collection
- The *Stop* button will stop the data collection
- The *Rewind* button will rewind the data
- The *Forward* button will forward the data
- The graph display can be a line graph (default), a bar graph or 3D-style graph

Control Buttons for TRSP Sensors:

- The *Open File* button will open an existing TRSP file
- The *Load File* button will load an existing TRSP file
- The *Help* button will open the Help page
- The *Close* button will close the screen

Sensor Calibration

The Sensor Calibration page allows the Lateral Acceleration Sensor (LAS) to be calibrated. The trailer needs to be on a level surface for the calibration. Press “Start” to begin the calibration process, use the “Yes, No, or Cancel” choices to answer any questions. Bendix® ACom® Diagnostics software can be used to recalibrate the lateral acceleration sensor, clear any DTCs and display the actual sensor value.

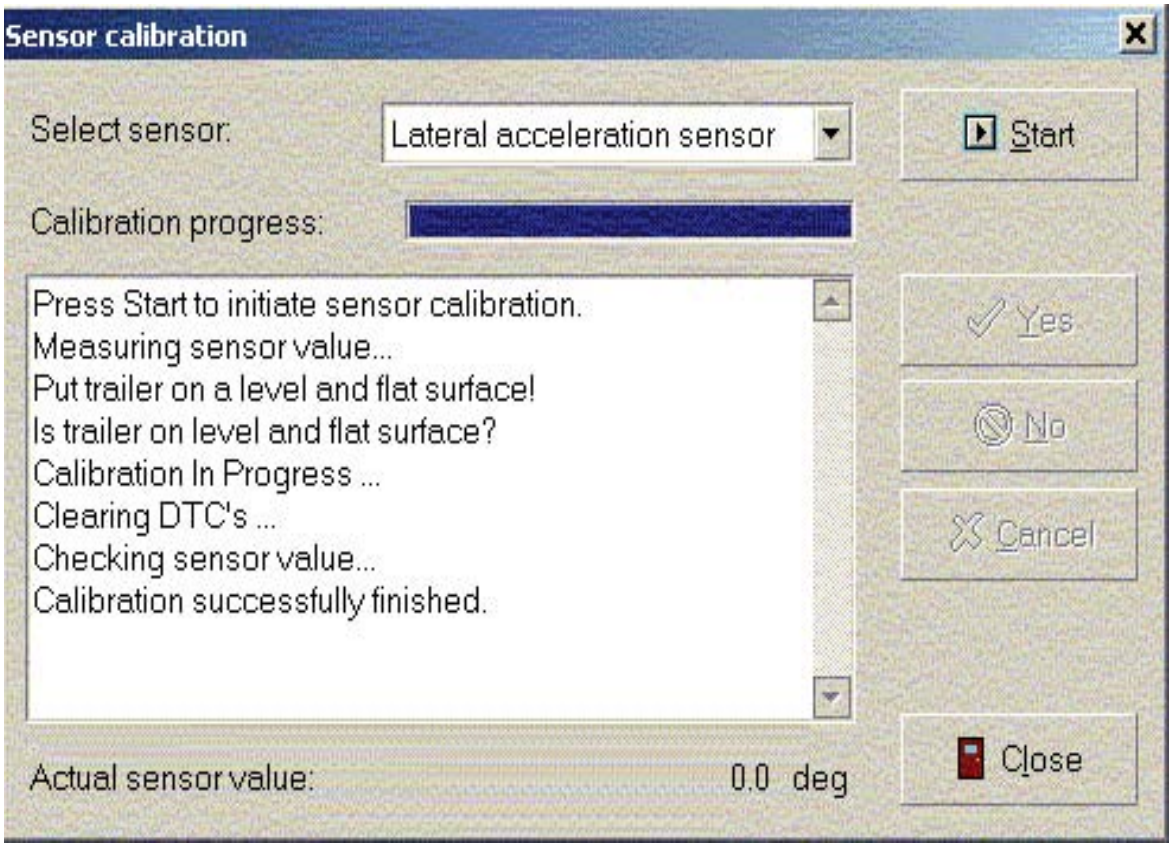


Figure 19

Control Buttons for TRSP Sensors:

- The *Start* button starts the calibration
- The *Yes* button is used to acknowledge that the technician is in agreement with the question asked
- The *No* button is used when the technician disagrees with the question asked
- The *Cancel* button stops the calibration
- The *Close* button closes the calibration window

Component Test Screen

The Component Test screen allows the technician to test various components of the system such as: wheel speed sensors; modulators; pressure sensors; switches; and the Bendix® Trailer Roll Stability Program (TRSP) system.
The Component Test screen also allows the technician to perform system tests such as: battery voltage; ABS indicator lamp; Aux I/O; and axle load.
Note: Before performing the component test, make sure the vehicle is parked on a level and flat ground with the wheels chocked.

Error
Warning! Vehicle must be parked on level surface and wheels blocked.
Please keep hands, feet, etc. away from moving parts.
OK

Figure 20

The Component test screen supports various tests; each tab will be populated with the tests which are supported by the ECU. The tabs are Sensors, Modulators, Pressures, TRSP system (if equipped) and Miscellaneous. Select the appropriate tab and the left side of the screen will display a list of available tests. Upon selecting the test, the right side of the screen will show what the technician must do before the test can run.

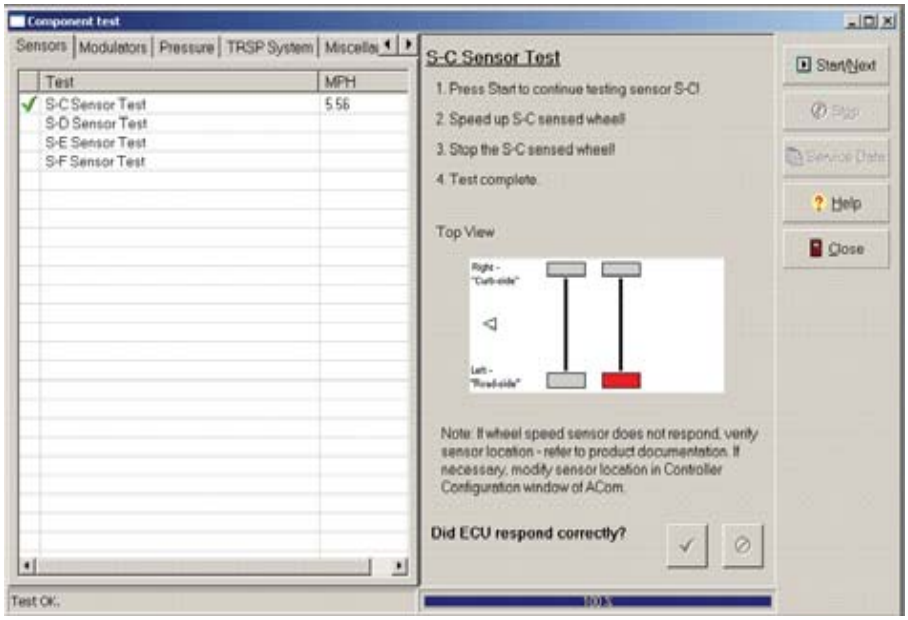


Figure 21

Control Buttons for Component Test

- The *Start/Next* button will start the test and/or move the technician to the next step of the test
- The *Stop* button will stop the test
- The *Service Data* button will open the service data sheet
- The *Help* button will open Help
- The *Close* button will close the screen

Modulators

This test allows the technician to check the modulators. The test displays the number of modulators currently configured in the ECU. To select the modulator to check, simply press the *Start/Next* button to start the test. Follow the instructions on the screen. The program will prompt the technician by asking “Did the modulator respond correctly?” The technician should respond by selecting the green check mark button indicating “yes”, or the red circle with a line button indicating “no.”

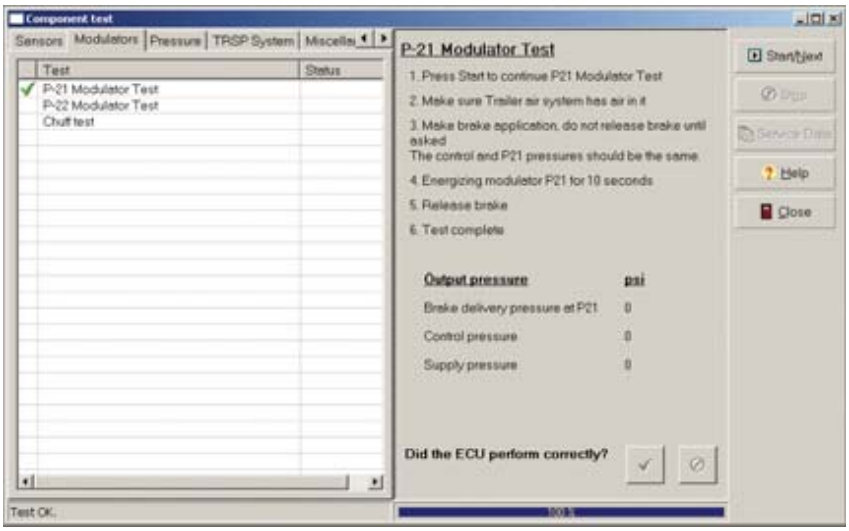


Figure 22

Pressure

This test will allow the technician to test the various pressure sensors supported by the ECU. Press the *Start/Next* button to start the test and follow the instructions. The program will prompt the technician by asking “Did the ECU respond correctly?” The technician should respond by selecting the green check mark indicating “yes”, or the red circle with a line indicating “no.”

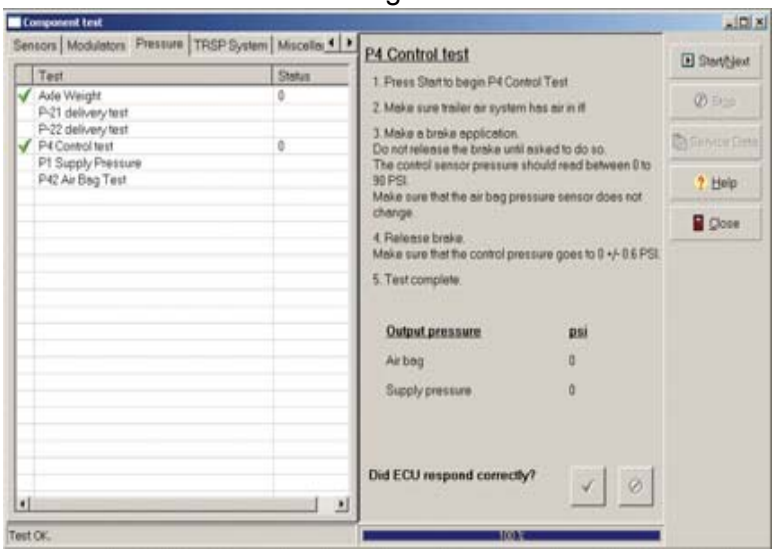


Figure 23

Bendix® Trailer Roll Stability Program (TRSP) (If Equipped)

Note: TRSP will be available only if the Electronic Control Unit (ECU) supports TRSP. This test will allow the technician to check the TRSP sensor installation angle. To begin, the technician will need to select "installation angle", then press the *Start/Next* button to begin the test. Follow the prompts to run the test. The program will prompt the technician by asking, "Did the ECU respond correctly?" The technician must then acknowledge if the test was successful by selecting the green check mark indicating "yes", or the red circle with a line indicating "no."

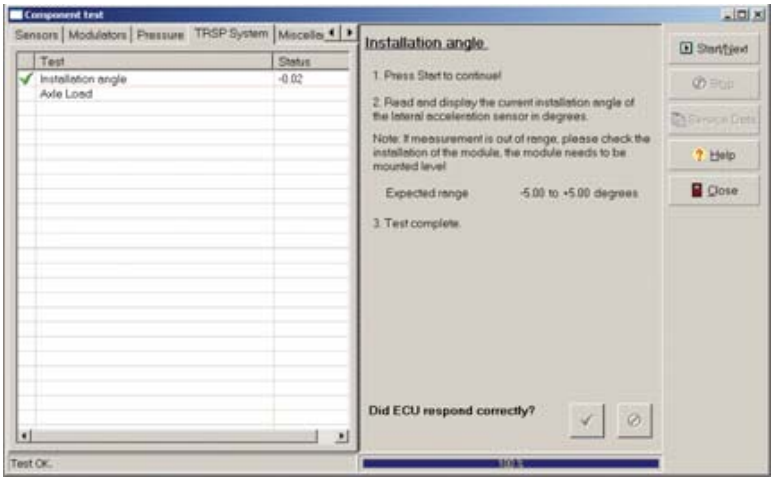


Figure 24

Miscellaneous

This test will allow the technician to evaluate the battery voltage, ABS indicator lamp, and AUX I/O functions. The function will display the tests available which are supported by the ECU. The technician must select which function(s) to check, then press the *Start/Next* button to start the test. Follow the prompts to complete the evaluation. The program will prompt the technician by asking, "Did the ECU respond correctly?" The technician must acknowledge by selecting the green check mark indicating "yes", or the red circle with a line indicating "no."

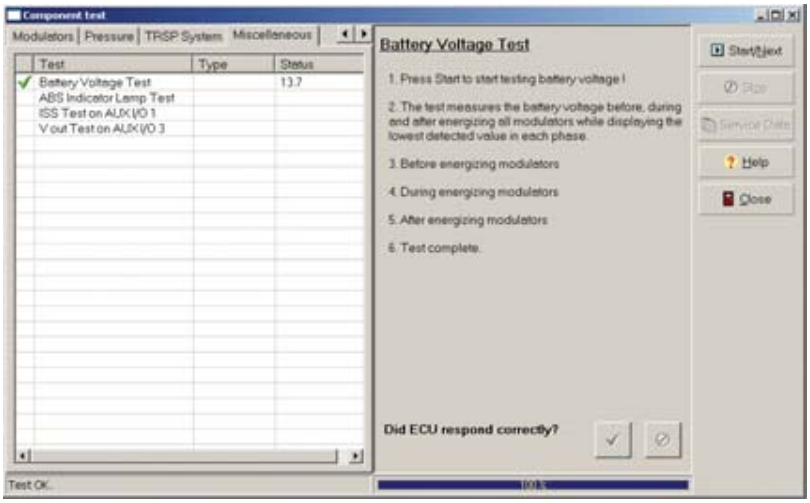


Figure 25

Installation Test

The Installation Test is for OEMs to make end-of-line verification tests on new vehicles.
The test allows the technician to verify the proper installation of the ECU and system components.
NOTE: In order for the Installation Test to run, the technician must first acknowledge the system-generated warning indicating that the vehicle must be parked on a level surface.

Additionally, the Bendix® ACom® Diagnostics software Installation Test provides a check of the ABS components with the help of technician input. **Please note that the Installation Test is intended as a tool to assist the quality control process at the vehicle manufacturer. However, this test must not be relied on as the sole validation check of proper brake system installation. The vehicle manufacturer must ensure appropriate process controls are in place in the manufacturing process to completely validate the vehicle brake system prior to vehicle shipment.**

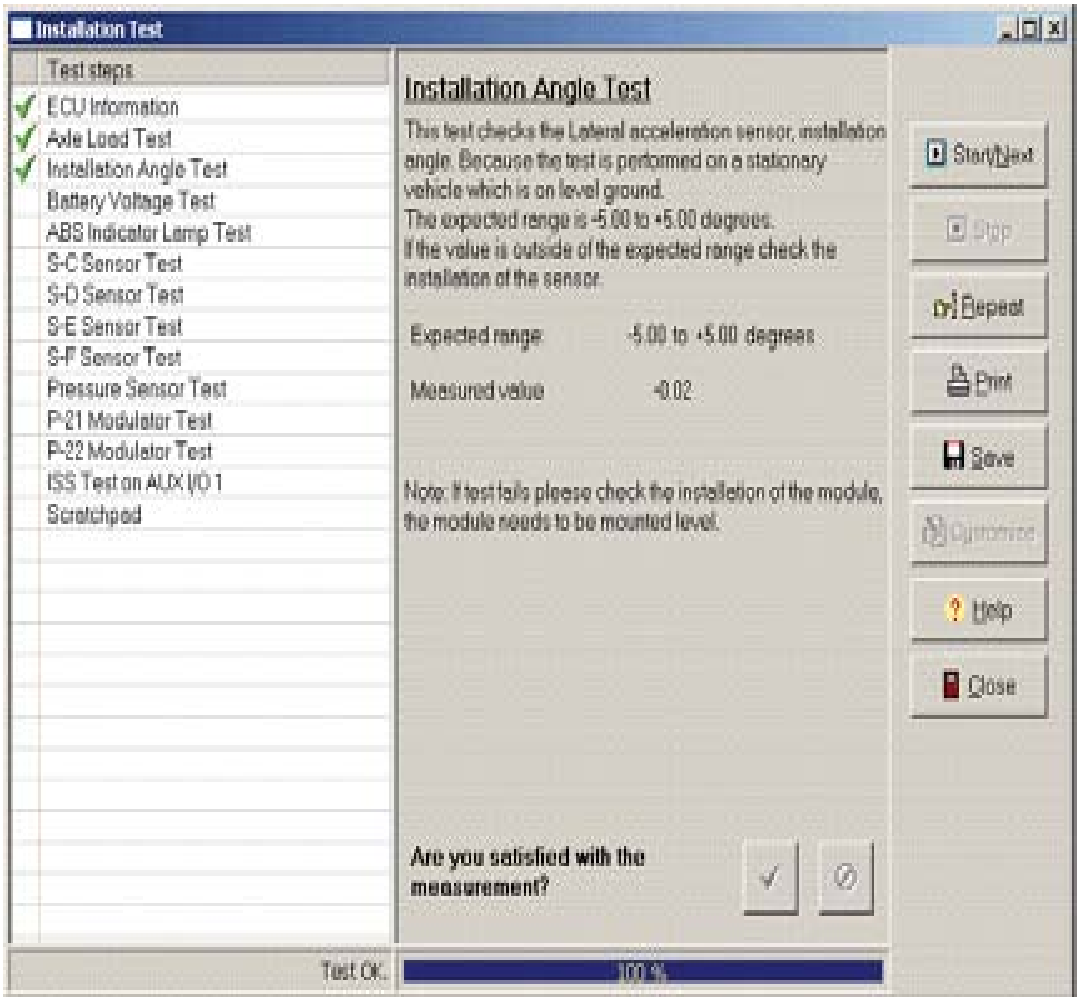

Installation Test
Test steps
ECU Information
Axle Load Test
Installation Angle Test
Battery Voltage Test
ABS Indicator Lamp Test
S-C Sensor Test
S-D Sensor Test
S-E Sensor Test
S-F Sensor Test
Pressure Sensor Test
P-21 Modulator Test
P-22 Modulator Test
ISS Test on AUX I/O 1
Scratchpad
Installation Angle Test
This test checks the Lateral acceleration sensor, installation angle. Because the test is performed on a stationary vehicle which is on level ground.
The expected range is -5.00 to +5.00 degrees.
If the value is outside of the expected range check the installation of the sensor.
Expected range -5.00 to +5.00 degrees
Measured value -0.02
Note: If test fails please check the installation of the module, the module needs to be mounted level.
Are you satisfied with the measurement?
Start/Next
Stop
Repeat
Print
Save
Optimize
Help
Close
Test OK.
100 %

Figure 26

Customize

The Customize screen allows the technician to customize some of the features in the installation test.
Warning: The tests conducted must match the features of the vehicle being tested. With each vehicle, it is important to confirm that the correct sets of features are being verified. Typically the Bendix® ACom® Diagnostics software will save the features used on the previous test, so if the software was used on a vehicle with different features during its last use, the customized features must be re-assessed and changed to match the new vehicle.
To complete any necessary changes, simply click in the box next to a desired test name — a check mark will appear — to request that the test be performed. Similarly, you may uncheck boxes to skip those tests.

Mandatory tests are displayed on the screen in gray, optional tests appear in black.
You may use the screen to:

- Re-arrange the order of the tests
- Save a report in TXT or HTML format
- Save a report using the VIN as the filename
- Create a folder in which to save the report (the program will prompt to ask for a folder and file name)
- Select to show wheel speeds in either MPH or RPM
- Select if you wish the test sequence to stop if the previous test failed
- Select if the technician needs to confirm if the service brake is applied during the modulator test

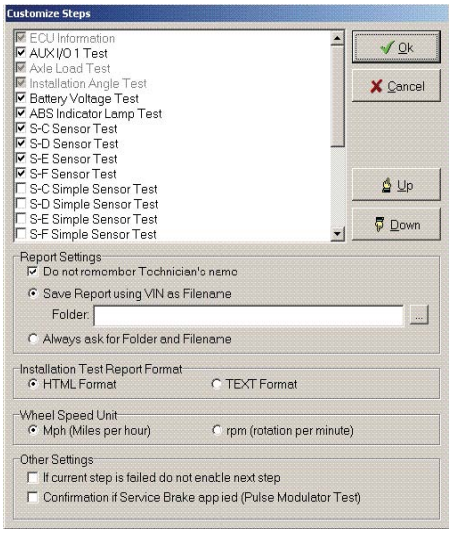
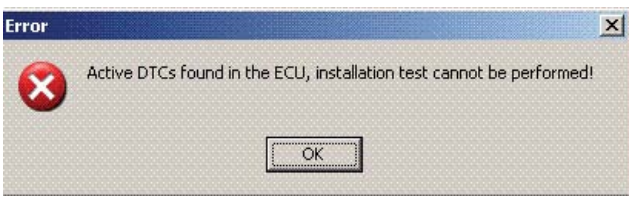


Figure 27

Control Buttons for Customize

- The *OK* button is used to accept changes
- The *Cancel* button is used to cancel (not accept) changes
- The *Up* button moves highlighted test up the list
- The *Down* button moves highlighted test down the list

If there are any active Diagnostic Trouble Codes (DTCs) on the Electronic Control Unit (ECU), the installation will not run, and the technician will be notified by a message. Active DTCs must be corrected and cleared before the Installation Test can be performed.



Installation Test requirements

The chart below indicates which tests are available for an Electronic Control Unit (ECU). If there is a YES next to the test name, that specific test is required in order to complete the Installation Test. If there is a "NO" shown for a test, that test is not required in order to complete the Installation Test. If there is an "N/A" shown for a test, this indicates that the ECU does not support that specific test. As a result, the test will not appear in the Installation Test list. For the wheel speed sensors, at least one of the two sensor tests is required – indicated by the word "ONE" in the chart. Bendix recommends that the full sensor test be run, although the simple sensor test is an acceptable option.

All the tests in the table below refer to Bendix® EC-60™ Controllers.

		ECU Feature(s)			
		Advanced (ADV)	Advanced(ADV), Multi-Channel (MC)	Multi-Voltage (MV)	Multi-Voltage (MV), Multi-Channel (MC)
Installation Test	ECU Information	YES	YES	YES	YES
	Installation Angle	YES	YES	N/A	N/A
	Axle Load	YES	YES	NO	NO
	S-C Sensor or Simple	ONE	ONE	ONE	ONE
	S-D Sensor or Simple	ONE	ONE	ONE	ONE
	S-E Sensor or Simple	N/A	ONE	N/A	ONE
	S-F Sensor or Simple	N/A	ONE	N/A	ONE
	P21 Modulator	YES	YES	YES	YES
	P22 Modulator	N/A	YES	N/A	YES
	Pressure Sensor	YES	YES	YES	YES
	Battery Voltage	NO	NO	NO	NO
	ABS Indicator Lamp	NO	NO	NO	NO
	AUX I/O	NO	NO	NO	NO
	Scratch Pad	YES	YES	YES	YES

ECU Information

The ECU Information Test is a mandatory test. It must always be run. The test provides the technician with information about how the ECU is configured.

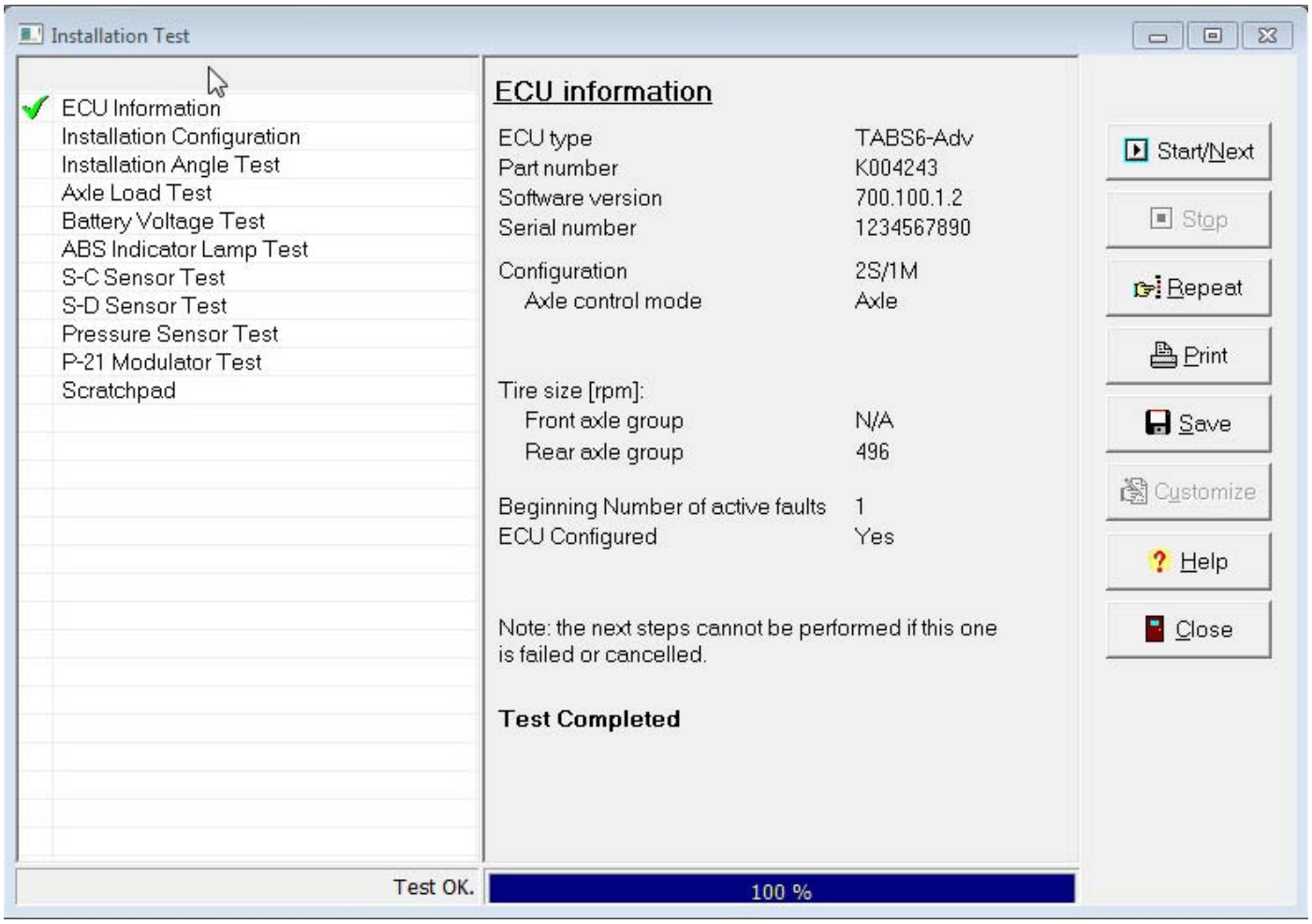


Figure 28

Installation Configuration

The Installation Configuration field displays a graphic – and specifics – about the expected configuration. The technician must verify that the components have been installed as shown.

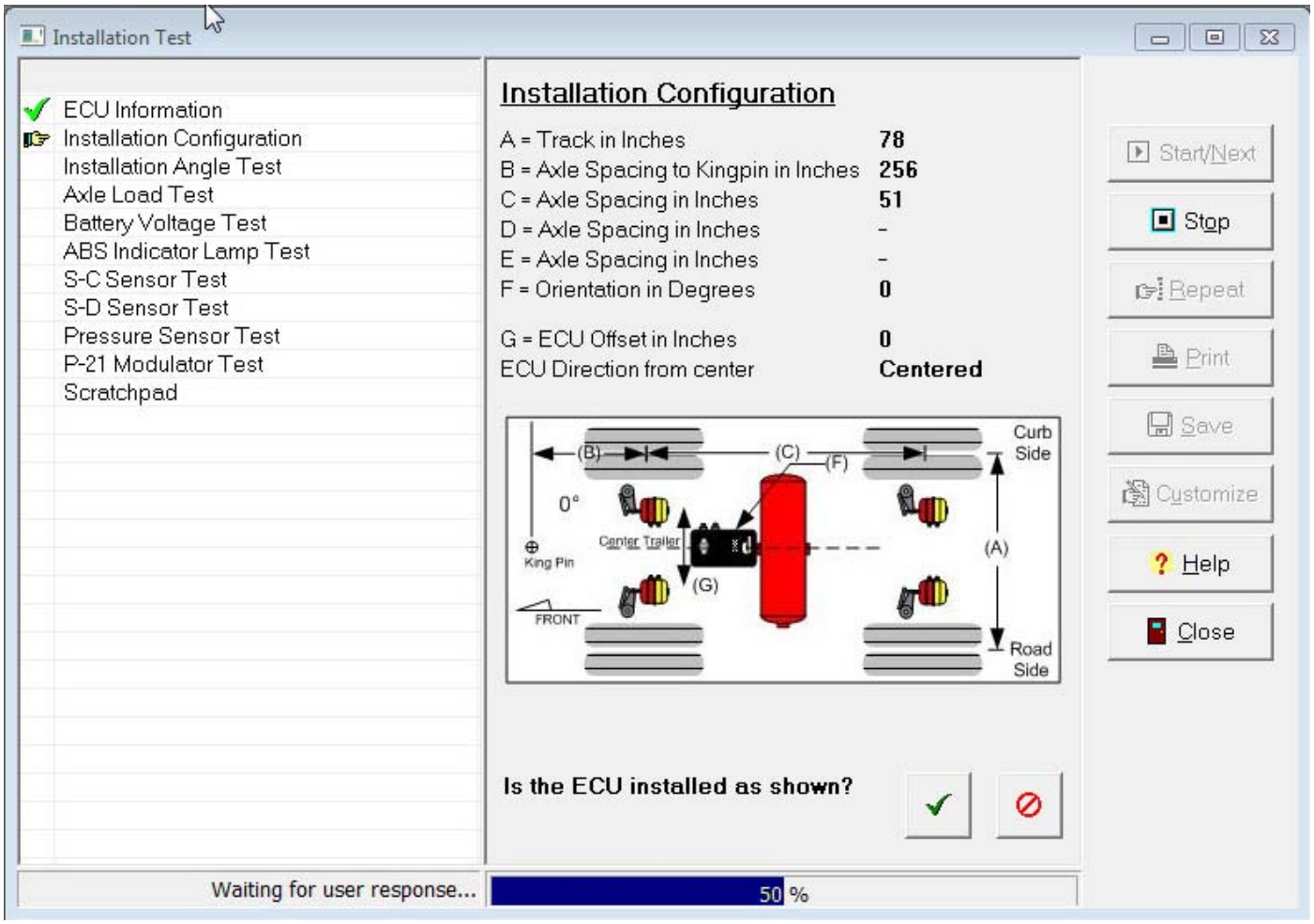


Figure 29

Axle Load Test

The Axle Load Test is mandatory for the Bendix® TABS-6™ Advanced (ADV) Electronic Control Unit (ECU), but not when inspecting the Bendix® TABS-6™ Multi-Voltage (MV) ECU. This test displays the detected weight on the rear axle in pounds.

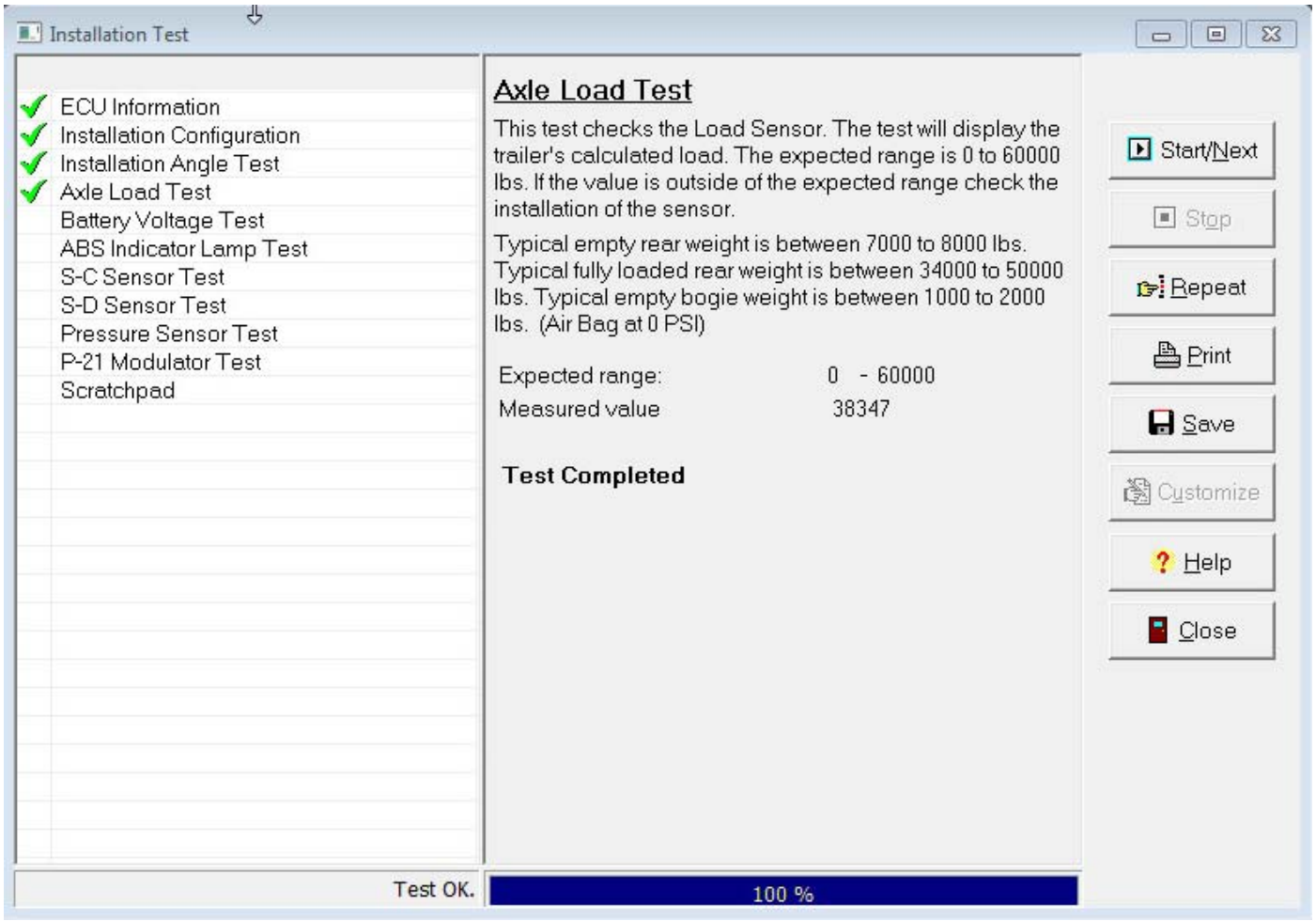

Installation Test
ECU Information
Installation Configuration
Installation Angle Test
Axle Load Test
Battery Voltage Test
ABS Indicator Lamp Test
S-C Sensor Test
S-D Sensor Test
Pressure Sensor Test
P-21 Modulator Test
Scratchpad
Axle Load Test
This test checks the Load Sensor. The test will display the trailer's calculated load. The expected range is 0 to 60000 lbs. If the value is outside of the expected range check the installation of the sensor.
Typical empty rear weight is between 7000 to 8000 lbs. Typical fully loaded rear weight is between 34000 to 50000 lbs. Typical empty bogie weight is between 1000 to 2000 lbs. (Air Bag at 0 PSI)
Expected range: 0 - 60000
Measured value 38347
Test Completed
Start/Next
Stop
Repeat
Print
Save
Customize
Help
Close
Test OK.
100 %

Figure 30

Battery Voltage Test

The Battery Voltage Test checks the voltage measured at the Electronic Control Unit (ECU), with the modulators de-energized, energized and de-energized. The voltage operating range is 8.0 VDC to 32.0 VDC for Bendix® TABS-6™ ADV / MV and MC controllers.

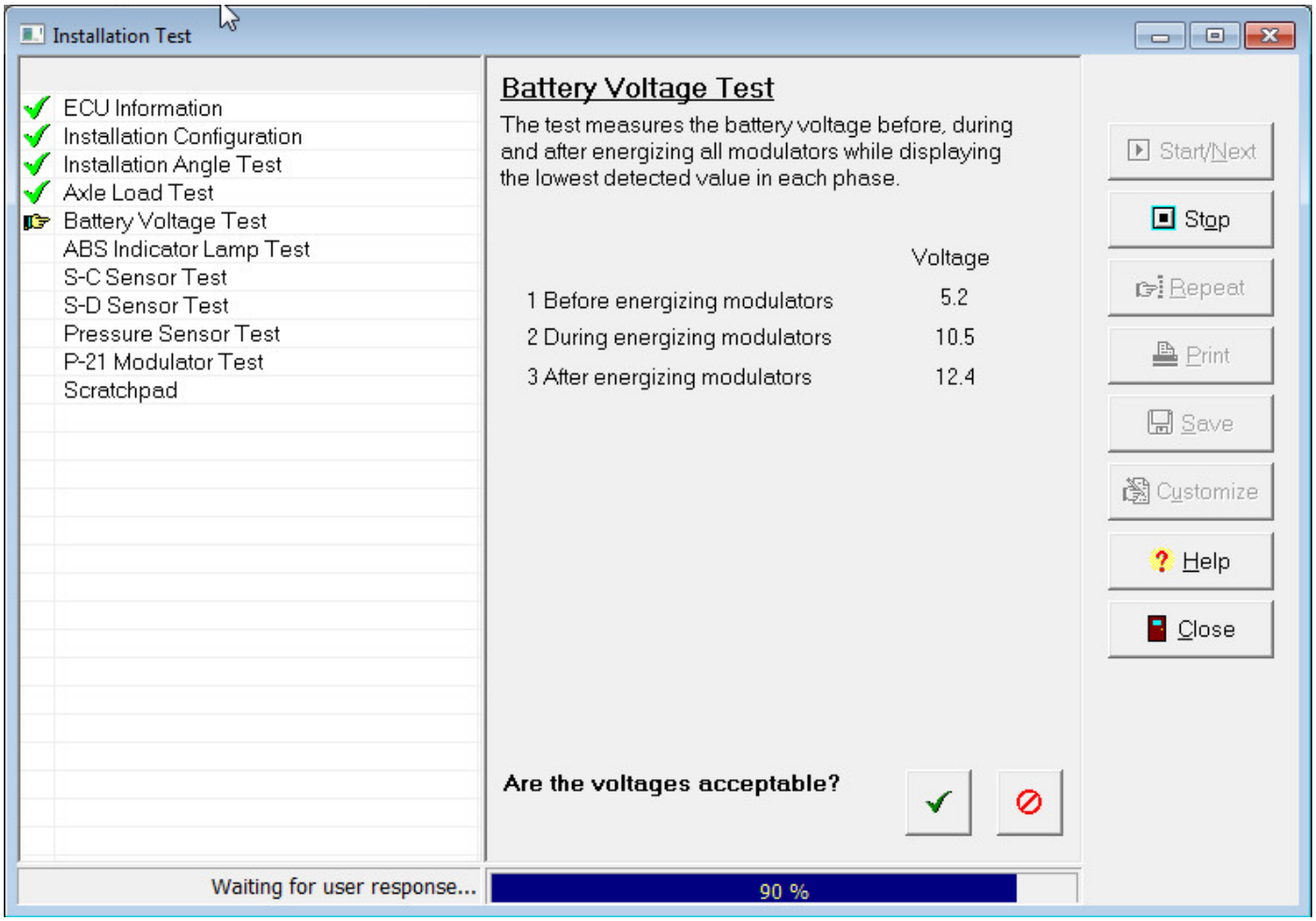


Figure 31

ABS Indicator Lamp Test

The ABS Indicator Lamp Test will illuminate and then extinguish the ABS indicator lamp while the technician verifies the correct operation of the dash-mounted ABS indicator lamp.

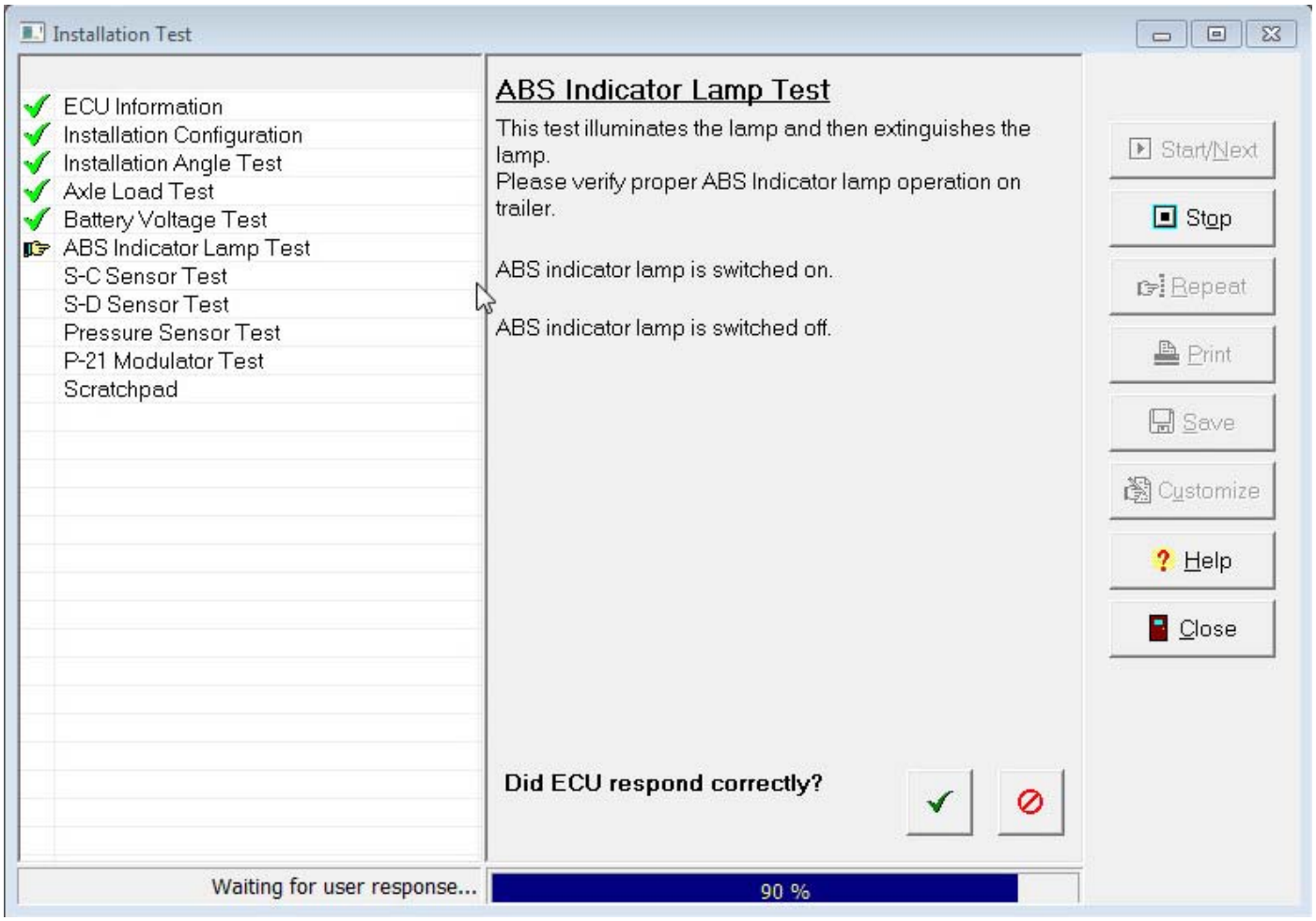


Figure 32

Installation Angle Test

The Installation Angle Test displays the vertical angle of the mounted ECU. The vertical angle must be within ±5 degrees of vertical.

NOTE: The installation angle test will only be available if the ECU supports Bendix® Trailer Roll Stability Program (TRSP).

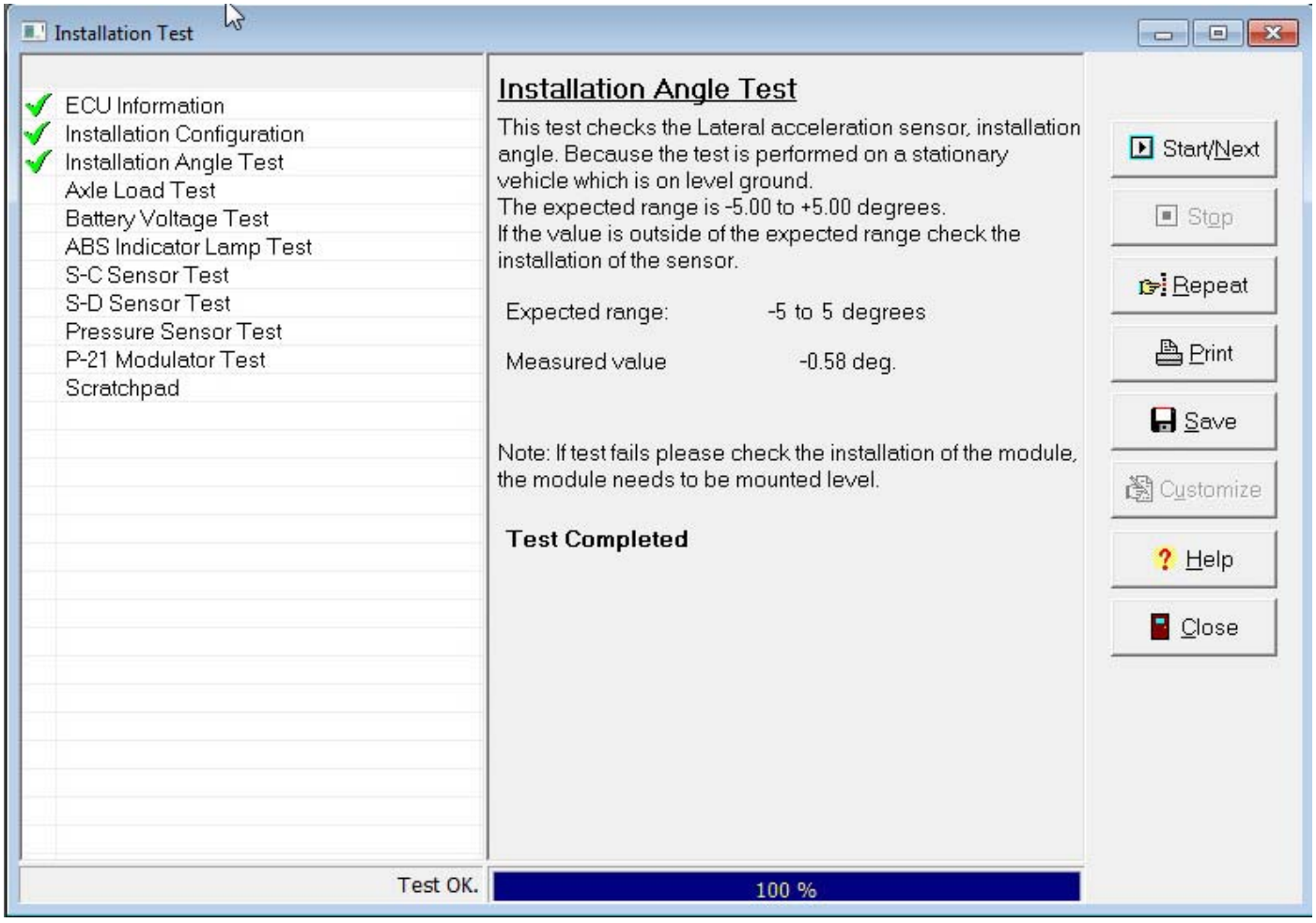

Installation Test
ECU Information
Installation Configuration
Installation Angle Test
Axle Load Test
Battery Voltage Test
ABS Indicator Lamp Test
S-C Sensor Test
S-D Sensor Test
Pressure Sensor Test
P-21 Modulator Test
Scratchpad
Installation Angle Test
This test checks the Lateral acceleration sensor, installation angle. Because the test is performed on a stationary vehicle which is on level ground.
The expected range is -5.00 to +5.00 degrees.
If the value is outside of the expected range check the installation of the sensor.
Expected range: -5 to 5 degrees
Measured value -0.58 deg.
Note: If test fails please check the installation of the module, the module needs to be mounted level.
Test Completed
Start/Next
Stop
Repeat
Print
Save
Customize
Help
Close
Test OK.
100 %

Figure 33

Sensor Tests

The Wheel Speed Sensor output is tested using the screen shown below.

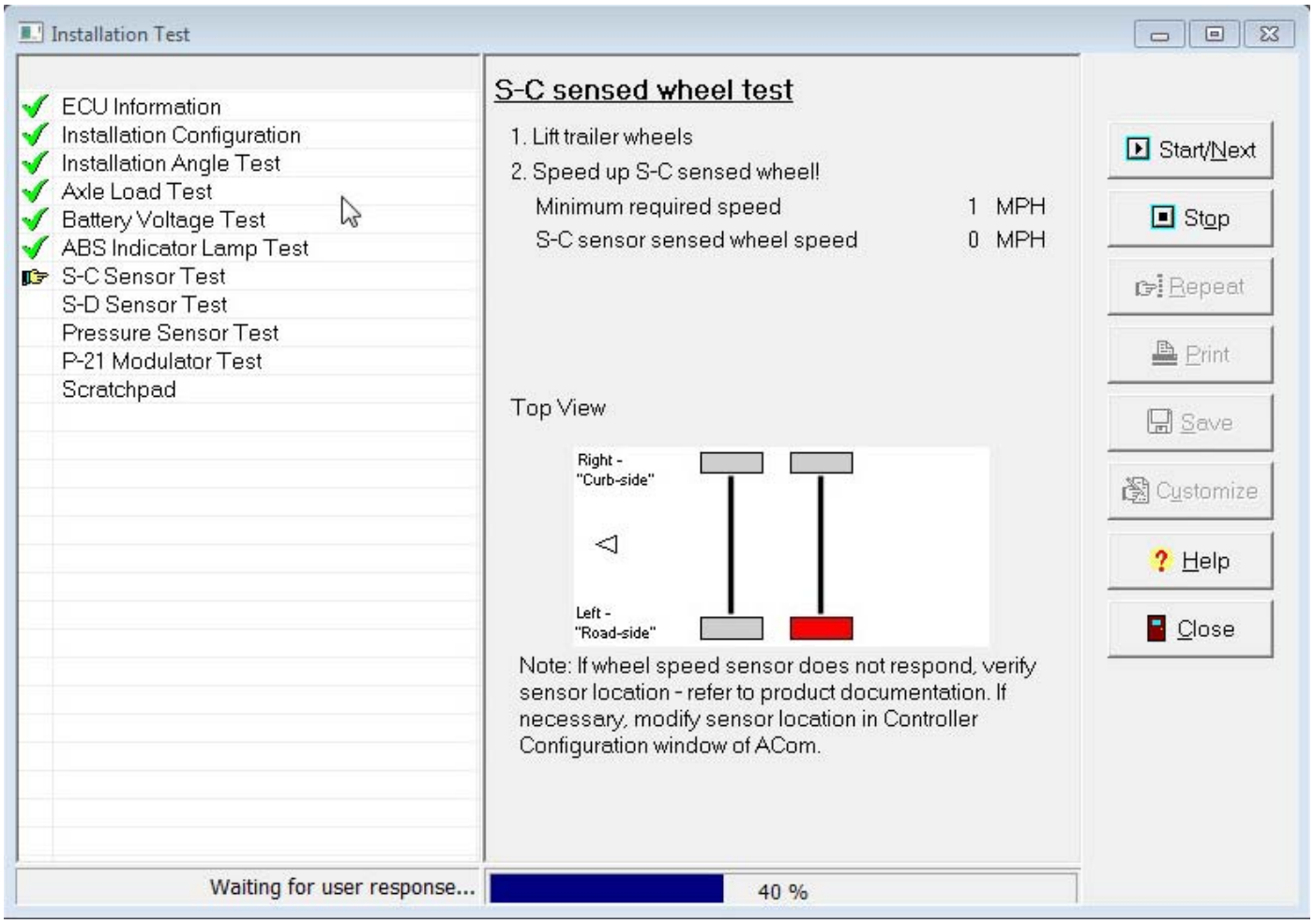


Figure 34

Pressure Sensor Test

The Pressure Sensor Test reads the pressures applied to the Electronic Control Unit (ECU) through the brake system. The potential number of pressure sensors supported is dependent upon the ECU.

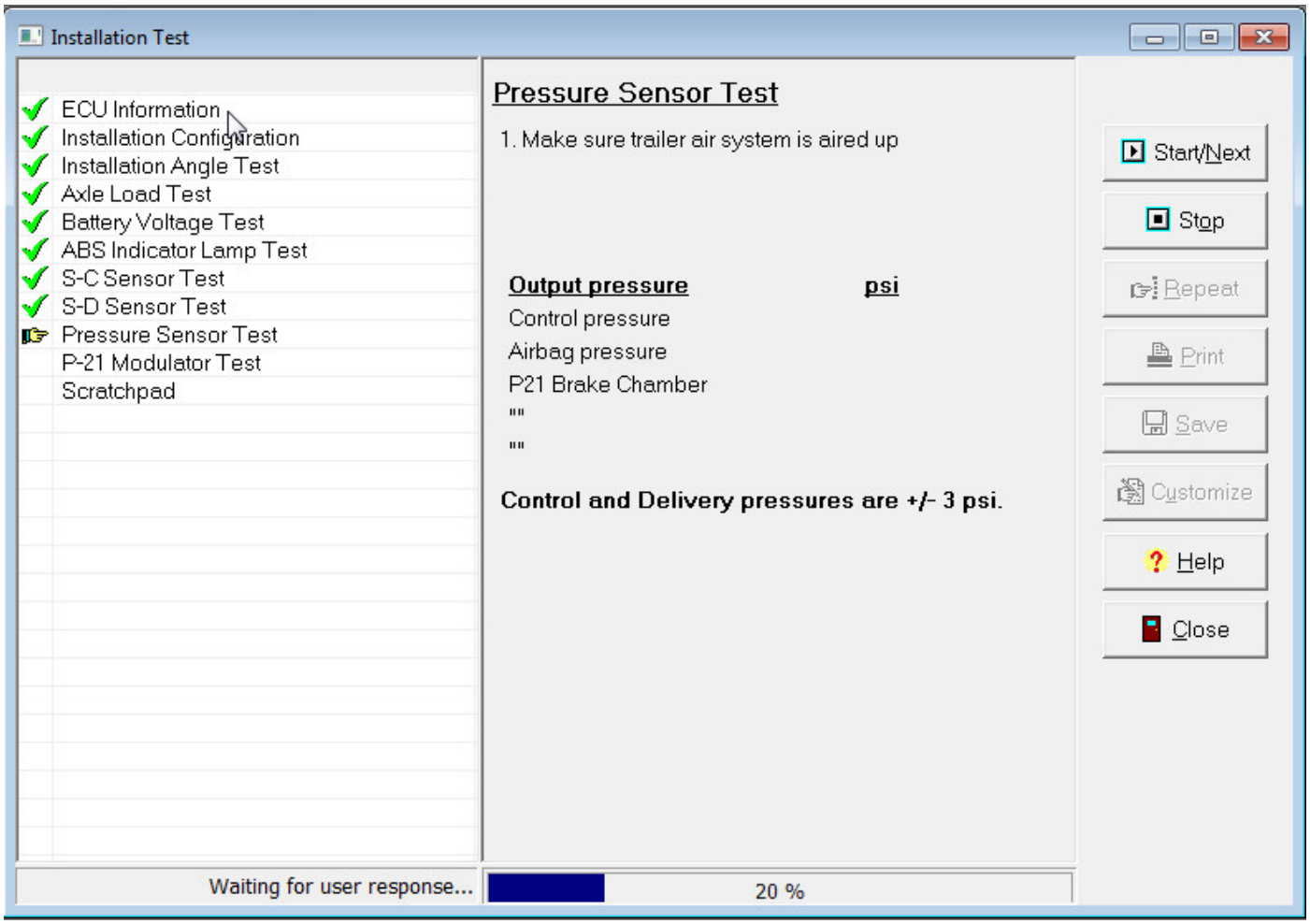


Figure 35

P21 / P22 Delivery Test

The P21/P22 Delivery Test will check that the module is correctly plumbed to the brake chambers and test the brake delivery air pressure. Park the vehicle on level ground and chock the wheels. During this test, the delivery pressure should match the control pressure. After applying the brakes, the technician must verify that the delivery and control pressures are the same. Bendix® ACom® Diagnostics system will then release the brakes and the technician must verify that the brakes have released. The final step is for the Bendix ACom Diagnostics software to re-apply the brakes.

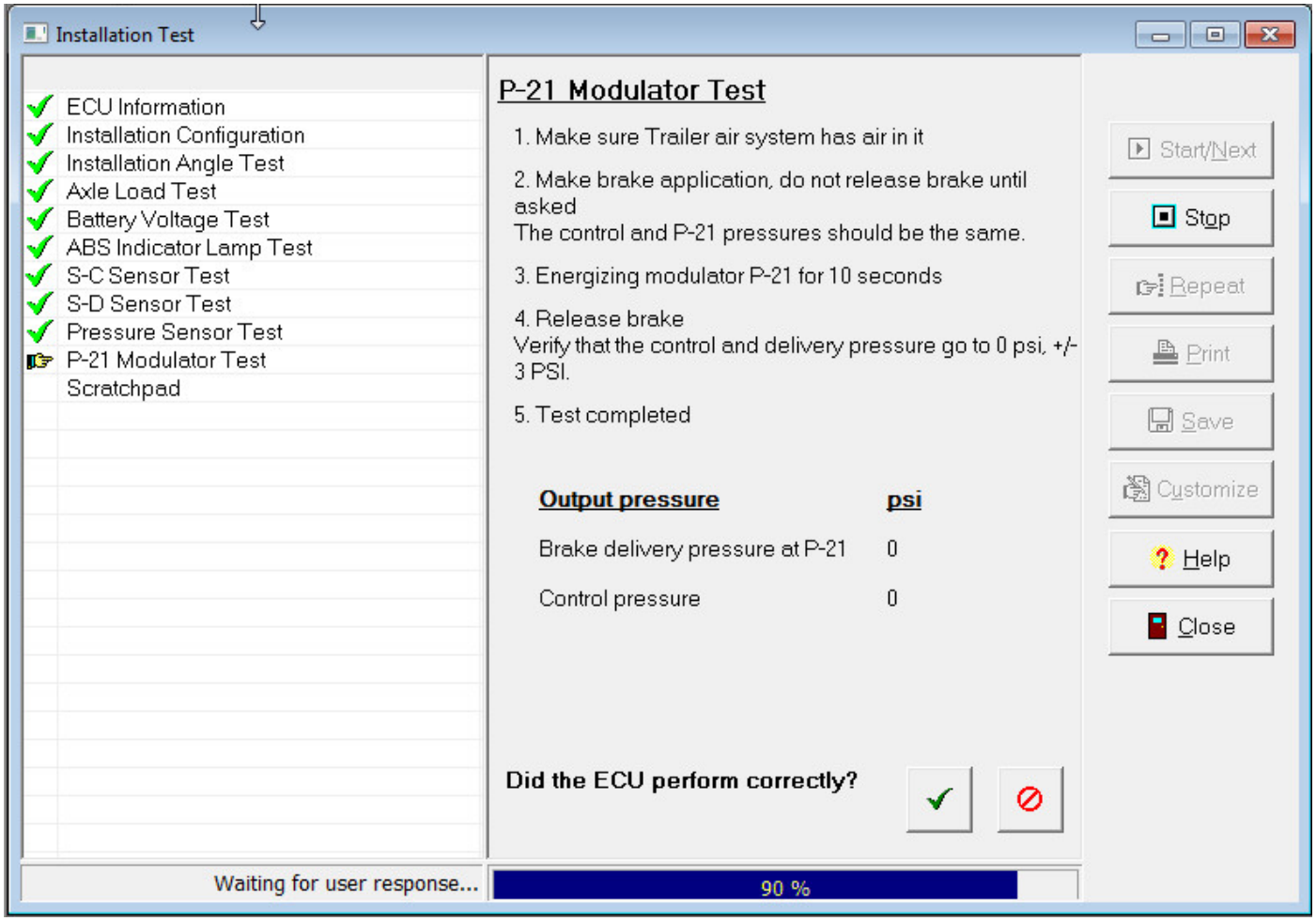


Figure 36

Scratch Pad

The Scratch Pad Test will write information to the ECU's scratch pad, indicating that the installation test has been performed.

Once the scratch pad information is written into the ECU, the technician can select to *Print* or *Save* the installation report for their records.

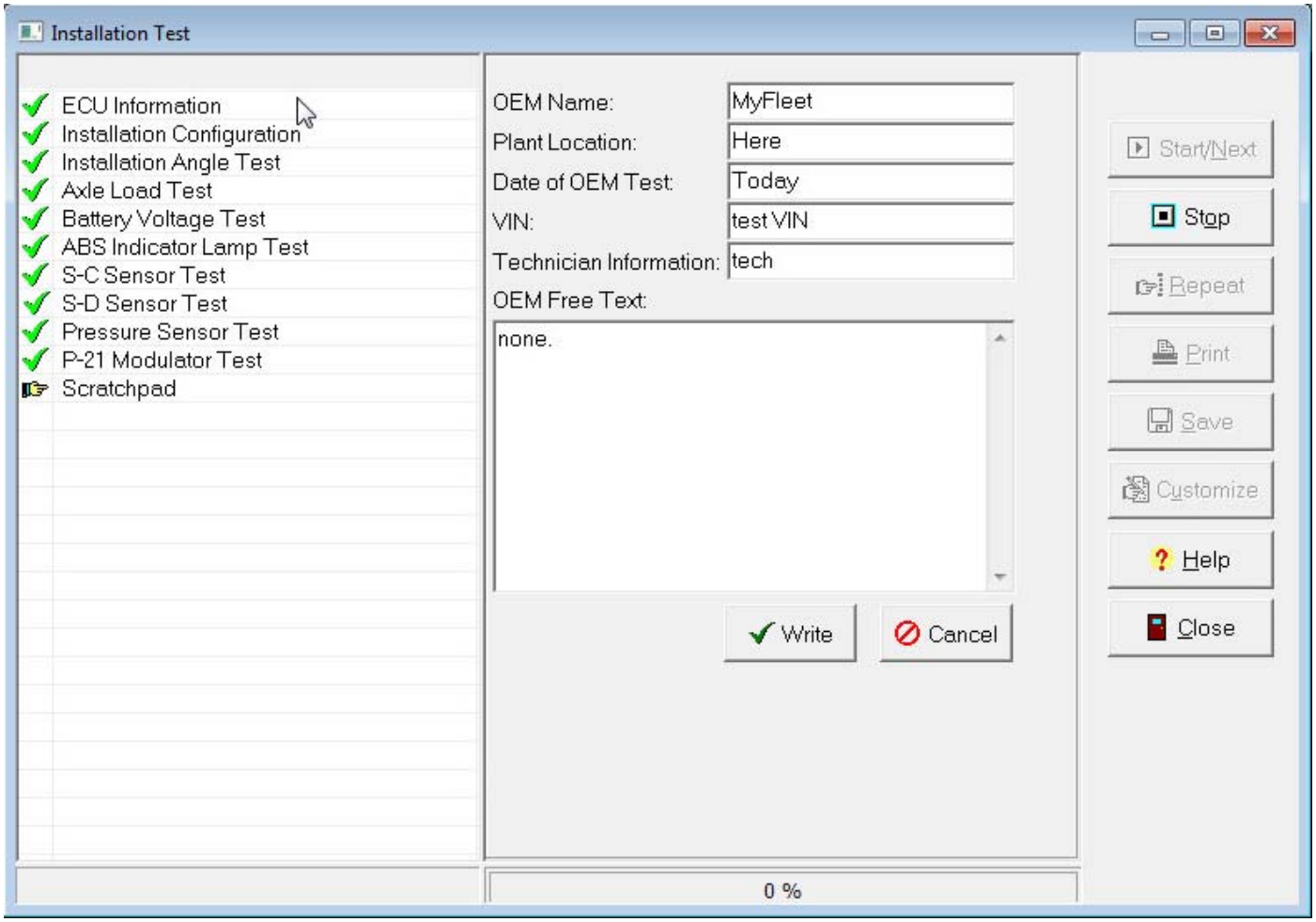


Figure 37

Bendix® ACom® Diagnostics 6.7 Adaptive Cruise w/Braking (ACB)

Refer to the Bendix Service Data sheet for the system under diagnosis for all cautions and warnings; certain system changes (e.g. sensor position changes) require approval from Bendix Engineering.

Launch the Bendix ACom Diagnostics software and using the starter window, select Wingman (Adaptive Cruise with Braking) diagnostics. In cases where the license key has been loaded into the Windows® registry, select Wingman Data Log in the starter window and the Wingman Data Log will be available. If the license key is known, but not loaded, or the key is not known, contact the Bendix Tech Team at 1-800-AIR-BRAKE (1-800-247-2725) for assistance.

ACB Status-ACB Sensor

The ACB Data Log selection takes the technician, by default, to the ACB status screen. This screen provides information about the system. The *System Data* field displays: model, software version, and software part number. In the *System Status* field, the number of active Diagnostic Trouble Codes (DTCs) will be displayed.

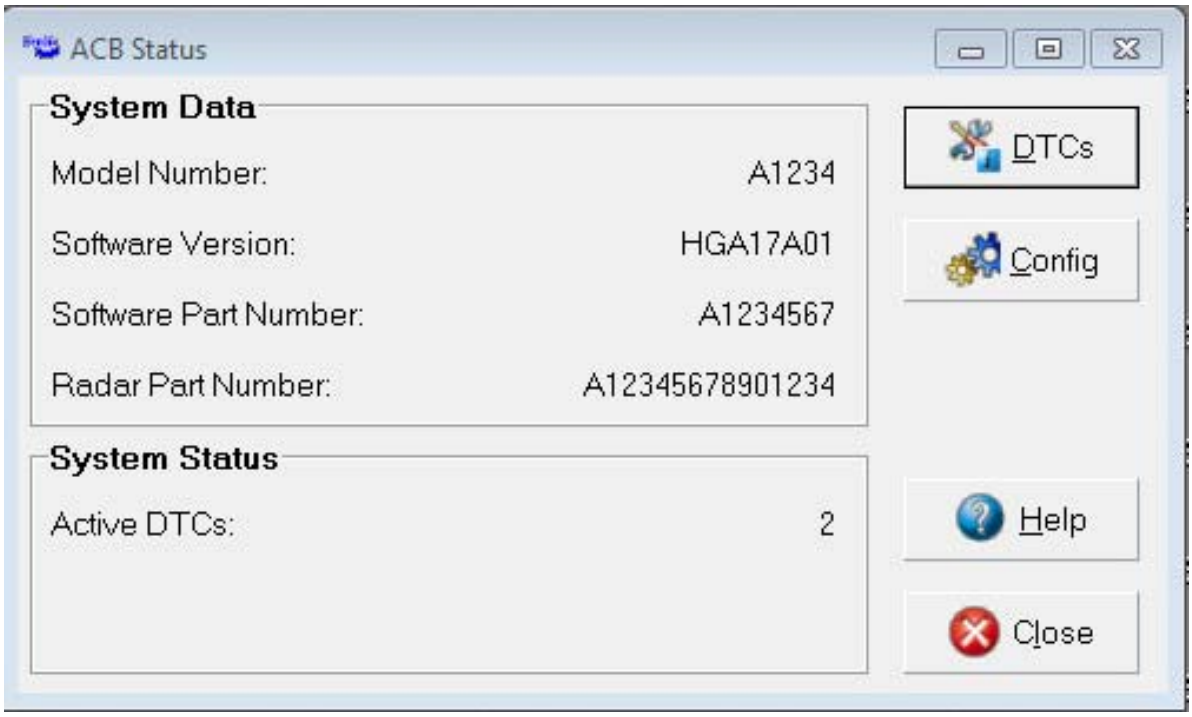


Figure 38

Control Buttons for ACB Status

- The *DTC* button will open the DTC window
- The *Config* button will open the Configuration window
- The *Help* button will open the Help page for ACB Status
- The *Close* button will close the window

Diagnostic Trouble Code (DTC) Window-ACB Sensor

The DTC screen provides the technician with active and stored DTC information. For the active and stored DTC information, the windows are two tabs; switch between the two views by clicking on the tab. Each page has two panes: the first pane displays the DTCs; and the second pane displays troubleshooting/repair information corresponding to the DTC.

The DTC window will display the SPN (Suspect Parameter Number), FMI (Failure Mode Identifier), Error Object, Failure Number, Description and Frequency Counter (number of occurrences the fault).

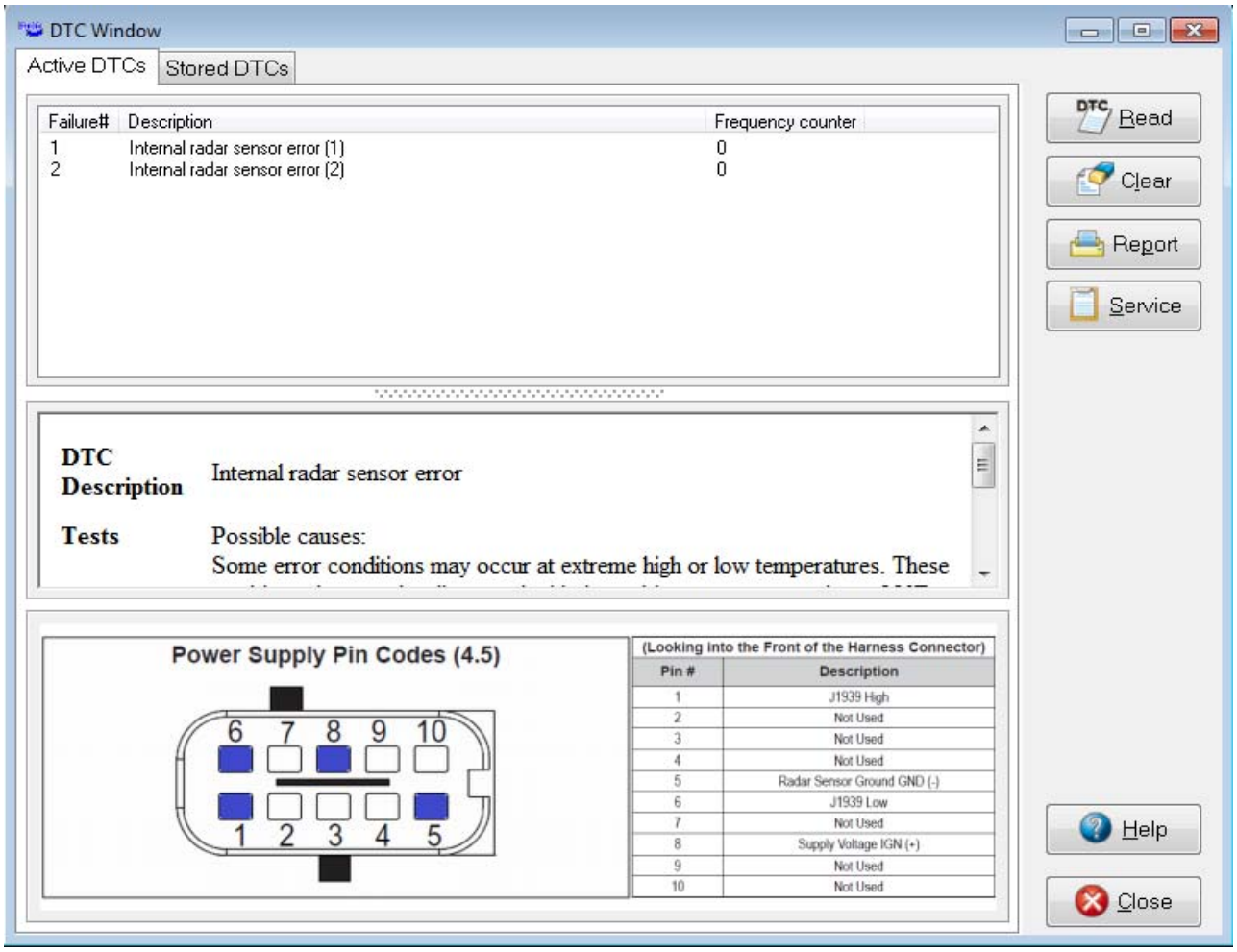


Figure 39

Control Buttons for DTC window

- The *Read* button will refresh the DTC information from the ECU
- The *Clear* button will clear the information from the tab
- The *Report* button opens a page to allow the technician to input data about the ECU and then allows the technician to save, email or print a DTC report
- The *Service* button opens the service data
- The *HELP* button opens help page for DTC
- The *Close* button will close the window

Configuration Window – ACB

The Configuration Window is used to display ACB sensor configuration information including the mounting offset, stationary object warning, alignment value and following distance setting configuration number.

ACB Sensor Configuration Mounting Offset

The ACB Sensor mounting offset provides the horizontal offset relative to the vehicle's longitudinal axis. A positive value indicates an offset to the left of the vehicle's longitudinal axis (driver's side) and a negative value indicates an offset to the right of the vehicle's longitudinal axis (passenger side). The offset range is ± 500 mm (19.69 inches). The physical mounting location of the sensor cannot exceed ± 500 mm. **Changes to the sensor location from the OEM-installed position requires Bendix Engineering approval.**

Stationary Object Warning

The Stationary Object Warning field provides the technician with an audible alert for stationary objects within the vehicle path. Stationary object warnings will be enabled (ON) or disabled (OFF).

Alignment Value

The ACB sensor alignment value provides the angle calculated by the system that the sensor is found to be pointed (laterally) away from the vehicle's longitudinal axis.

The smaller the alignment angle, the better forward vehicle tracking performance. A positive value indicates that the sensor is currently aimed to the right side of the vehicle's longitudinal axis (passenger side). A negative value indicates the sensor is currently aimed to the left side of the vehicle's longitudinal axis (driver's side). The acceptable alignment range is ± 1.4 degrees, but if the alignment value is greater than ±0.8 degrees, it is recommended to adjust the sensors aim. See the ACB Service Data Sheet for full details of the sensor adjustment procedures.

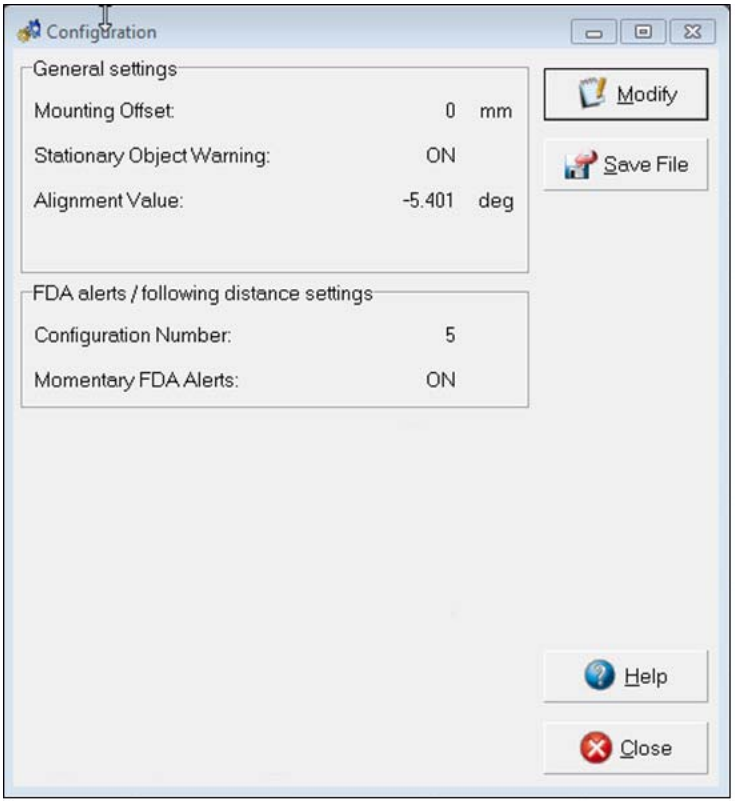


Figure 40

Following Distance Settings

The Following Distance/alerts configuration number is a numeric value that represents the current configuration of the ACB sensor following distance setting and alerts.

Control Buttons for Configuration

- The *Modify* button will open the change window, allowing the technician to reset the alignment value to zero and change the alert following distance configuration number. Additionally, the technician is permitted to save or load the ACB sensor configuration file.
- The *Help* button will open the HELP page
- The *Close* button will close the window

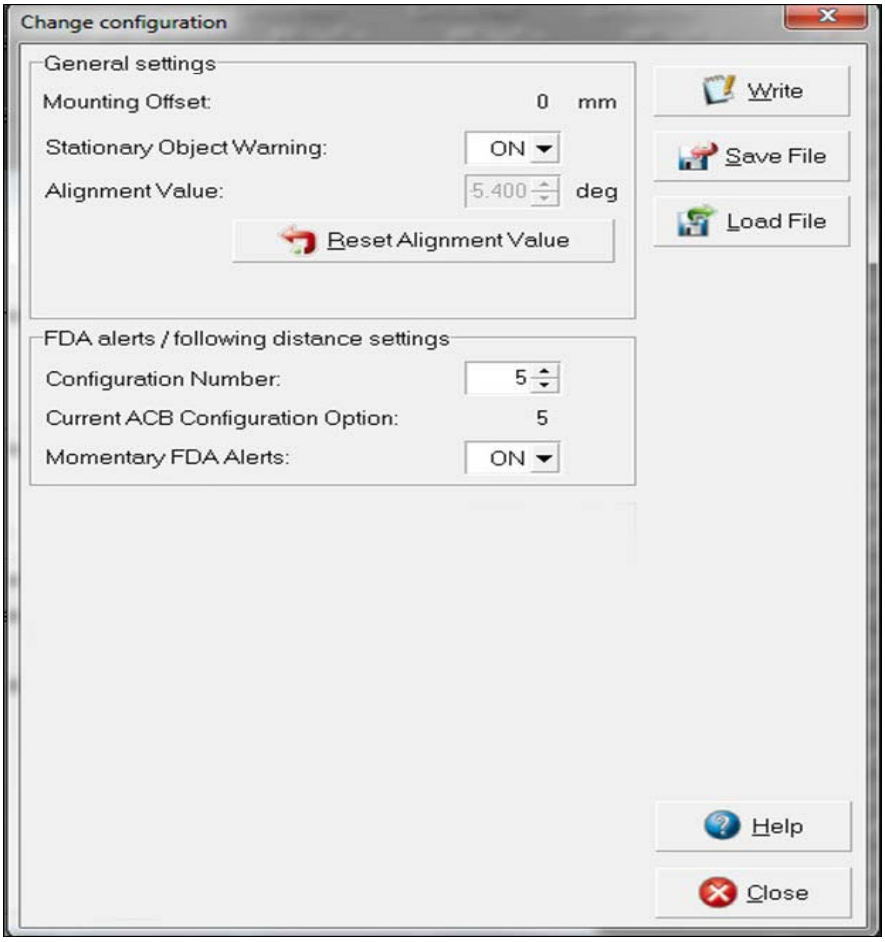


Figure 41

Control Buttons for Change Configuration

- The *Write* button writes the configuration changes to the ACB sensor
- The *Save File* button saves the configuration file of the ACB sensor
- The *Load File* button loads the configuration file of the ACB sensor
- The *Help* button will open the HELP page
- The *Close* button will close the window

ACB Data Log

The Wingman® Data Log on the Bendix® ACom® Diagnostics starter window allows the technician to create an ACB data log report or clear the resettable data log file.

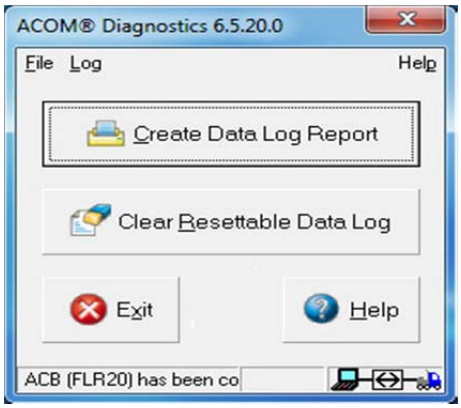


Figure 42

Creating Data Log Report

When the technician selects Create Data Log Report, a dialogue box will open, requesting the mileage and VIN of the vehicle. Input the information and select *Continue*.

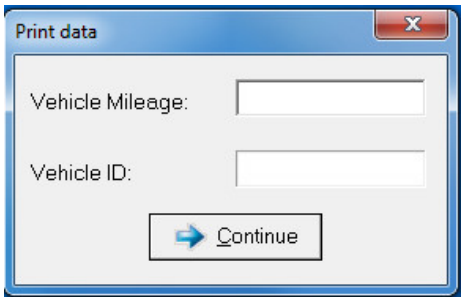


Figure 43

Next the technician should select: Print; Print Preview; Email to Bendix; or, Save the report. If the technician chooses to save the report, a dialogue box opens allowing them to choose the file location.

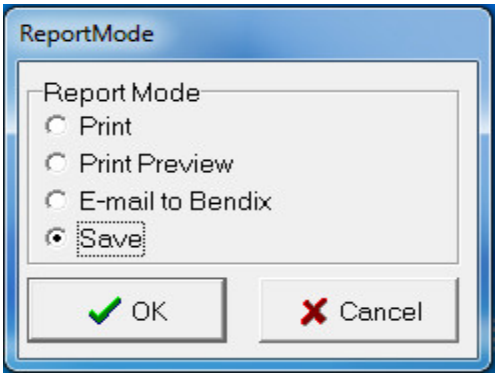


Figure 44

Clear Resettable Data Log

When Clear Resettable Data Log is chosen, a dialogue box will open and request that the technician confirm the resettable data log file is to be cleared. Next, a dialogue box will open asking the technician if they want to save the resettable data log before clearing it.

If the technician selects “Yes”, a dialogue box will open asking the technician to input the mileage and VIN. A Data Log Report will be created and the technician will be asked if they want to: Print; Print Preview; Email to Bendix; or Save.

If the technician selects “No” to saving the report before it is cleared, or after the report is created, Bendix® ACom® Diagnostics system will clear the Resettable Data Log.

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